THE

# INTERNATIONAL REVIEW.

MARCH, 1876.

## CAIRNES ON AMERICAN AND IRISH QUESTIONS.[1]

IN reviewing the necrology of the last year, we find that no one has died in England, whose life and labors have a better claim to extended notice in an American periodical, than those of John Elliott Cairnes. Many notices of him from the English press, testify to the conspicuous position which he had attained, among English thinkers and writers, on economical and political subjects. The article by his friend Professor Fawcett, in the *Fortnightly Review*, reveals, more intimately than any other, the features of his private life, and the noble triumphs of the intellect and will over bodily infirmity and suffering. It would be difficult to picture a more impressive scene than the meeting of these two friends—the one blind, and the other a helpless cripple—to discuss, in the home of their common master, John Stuart Mill, the great passing questions of legislation and reform. Mr. Fawcett has testified to the valuable assistance which he derived from these interviews, in his practical duties as a member of Parliament.

It has seemed to us, however, that something remains to be said of Professor Cairnes, beyond what has been said by the press of his own country; and that he has claims upon the respect and grati-

[1] "The Slave Power: Its Character, Career and Probable Designs: Being an Attempt to explain the Real Issues involved in the American Contest." By J. E. Cairnes, M.A. London: Parker. 1862. 8vo., pp. xviii. and 304.

[2] "Political Essays." By J. E. Cairnes, M.A. London: Macmillan & Co. 1873. 8vo., pp. xiii. and 350. (II. The Revolution in America. VI. Thoughts on University Reform. VII. The Present Position of the Irish University Question—1873).

tude of Americans, which have not been, heretofore, sufficiently recognized.

The incidents of his life are few, and may be briefly stated. He was the son of a brewer of Drogheda, a town on the south coast of Ireland, and was educated at Trinity College, Dublin, where he distinguished himself for his devotion to the study of Political Economy. At the early age of thirty-two, he was appointed to the Whately professorship of that science, in his college. While holding that position he published his first text-books on Political Economy, and his Essays on the Gold Question, since republished in the volume of Political Essays. In 1861, when the term of his professorship at Dublin was about to expire, he was appointed Professor of Jurisprudence and Political Economy, in Queen's College, Galway. He afterward resigned that chair, and accepted a similar one in University College, London. It was there that he rendered his last service as an instructor, being borne down by the disease which recently terminated his life after years of acute suffering.

### THE SLAVE POWER IN AMERICA.

The conspicuous service which Professor Cairnes rendered to this country, was the publication, early in the second year of the late civil war, of his book on the "Slave Power." It embodied the substance of lectures delivered a year earlier, in the University of Dublin. The London *Times* has lately said of this work, that "it was recognized as the contribution of a statesman-student, in whose consideration of the aims of the men attempting to set up the Slave Power, no grain of fanaticism could be detected." The date at which the lectures were delivered, attests their thoroughly original and dispassionate character. So far as we have been able to learn, the author had not, at that time, any personal friends in America, so that his judgment was unbiased, either by sympathy or prejudice, and his conclusions, with respect to the war, were the result of careful study and severe logical deduction. In his exposure and condemnation of the slave system, he took smaller account of the wrong done to the enslaved race, than of the injury which it inflicted on all human society. He looked upon slavery as a principal obstacle not to the progress of America merely, but to civilization in general.

The only other book, published at that time in Europe, which can compare with it in importance and usefulness to the cause of the Union, was Count Gasparin's "Uprising of a Great People." But to the audience addressed, the book of Professor Cairnes was the more

valuable, although, in this country, owing to its popular and impassioned character, that of Count Gasparin has probably been more widely read. The question before us at that time, was how to stem the tide of hostile feeling running against us in Europe, and particularly in England. The interest in our war, both sentimental and real, was far greater, at all times, in England than in France, being the interest of a common race, with kindred political aims, and intimate commercial relations. This interest pervaded all classes of society, though it excited among them very conflicting feelings. In France, on the contrary, there was no popular sympathy for, or against, us. A small body of philanthropists, and of social and political reformers, took the northern side; but it was as much out of hostility to the Empire at home, as from sympathy for Republican institutions, assailed by barbarism, abroad. The emperor desired to have the Union divided, in order to render it powerless to prevent the consummation of his ambitious schemes against Mexico. But to the average Frenchman, the struggle was altogether remote and foreign, and only interesting as it touched the pockets of the classes who live upon the American traveler, and whose yearly autumnal harvests were diminished by his absence.

In England it was far otherwise. On the one side, was the unconcealed hostility of the government and upper classes, the springs of which were to be found in national jealousy and social toryism. Nothing in modern times has brought out in such strong relief the intense class feeling which still exists in England, and which has survived the political changes which have made the government of that country almost as popular as our own. On the other hand, the workers and thinkers of England, from whom have come all the great reforms which have remodeled the British constitution, and elevated the masses of the people, while adding vastly to the wealth and material power of the nation, warmly espoused the northern side as soon as they understood its real purposes. The sincerity of this friendship, is attested by the fact that the manufacturing classes were the chief sufferers from interrupted trade, and had the best excuse for wishing to see the war ended, at whatever sacrifice to liberty or civilization.

In view of the influence which trade has, for many years, exerted over the foreign policy of Great Britain, the danger which menaced the peace of the two countries can hardly be exaggerated. The England of to-day is not the England which plunged into the great European war at the end of the last century, in order to curb the

revolutionary spirit of France, and to prevent its contagion from spreading to its own islands; nor even the England of Canning's time, which called republics into being in the New World, to redress the balance of the Old. It is rather the England which sends its ships into every sea, laden with the products of its furnaces and looms, and which has its merchant representatives in every considerable seaport of the globe; which, to enlarge its markets, maintains a vast and expensive colonial system, and has built up an empire, in India, upon the foundations laid by a trading company. The encroachments of Russia upon Asia, and the fate of Turkey, are only interesting to Great Britain, as they may affect the commerce of the East. All Europe is now ringing with the brilliant piece of mercantile diplomacy by which Mr. Disraeli has acquired the largest government interest in the Suez canal—an interest which points to the possible protectorate of Egypt at no distant day. The money expended, and the responsibility assumed, are still for the same object—to protect the commerce of the East.

That in the face of this national disposition, to look at all questions of foreign policy as they directly bear upon the material interests of Great Britain, leading manufacturers in public life,—such as Cobden, Bright, Foster, Potter, and others not less earnest, but whose names are less familiar,—should have stood bravely by us in the darkest hours of the war, proves that the great party of Reform, in England, acts on higher principles than those of immediate self-interest; that the Cobden Club, in selecting for its motto, not only "Free Trade," but also "Peace—good-will among nations," is true to the example of the noble statesman whose name it bears. Cobden had established his claim to a humanity far above the limits of patriotism, when, in 1857, he denounced, in Parliament, the war on China in defense of smuggling, and lost his seat by so doing. His less distinguished, but not less generous successor, Mr. Potter, in a very recent address to his constituents at Rochdale, said, in a similar spirit, in relation to the hostilities lately threatened against the same country, "I hope and trust that we are going to have no Chinese war; but, in reference to such a possibility, I, for one, am not in favor of forcing our calicoes on nations, at the point of the bayonet. I do not think it a right system of trade."

At the time when Professor Cairnes' book appeared, however, the true issues of the war in America, had not come to be understood in Great Britain, and the prevailing sentiment was one of distrust and hostility. We had counted, securely, on English anti-slavery sympa-

thy; but we failed, at first, to get it, because we did not at once proclaim emancipation as the object of the war. The constitutional obligations, to which we had sacrificed so much in the past, and which still held such power over the public conscience, was wholly unappreciated in European countries, where constitutions, written or unwritten, have never outlived the public sentiment which gave them birth. There is no European example of respect for organic law, such as was shown by the Northern States, for a quarter of a century, in their obedience to the repulsive obligations of the Federal Constitution in respect to slavery. Wholly insensible to the force of these obligations, it was not, therefore, difficult to persuade the anti-slavery people of England, that the avowed hostility of the North, to slavery, was a hollow pretense, and that sectional rivalries were at the bottom of the quarrel. In such a quarrel, the sympathies of Great Britain might fairly follow her dependent interests. Though the breadstuffs of the North were important to her in a short harvest, like supplies could, at most times, be obtained in sufficient abundance from the Baltic and the Black Sea; while in all seasons alike, as the event has proved, a sufficient supply of good cotton could only come from the Southern States of America.

Under Democratic administrations, the ministers of the United States at European courts, had, of late years, been chiefly Southerners, or Southern sympathizers, so that the field was well prepared for the distinguished and able representatives of that section, who were dispatched to Europe to advocate its cause as soon as the war began. They pressed home the argument that England was dependent on the South for the principal staple of its manufacture, and claimed that the choice lay between free trade, and abundant cotton, on the one side; and protection, under the Morrill tariff, on the other. They boldly denied that slavery had anything to do with the quarrel, at the very moment when Vice President Stephens was declaring, at Montgomery, that "it was the immediate cause of the late rupture and present revolution;" and when the Charleston *Mercury* was advocating a revival of the slave trade, "as the test of the integrity of their institution," which could not be defended if the trade in slaves was immoral. The audacity of these statements, is only paralleled by the credulity with which they were listened to.

Professor Cairnes' book did much to remove these early false impressions. A professor of political economy in one of the most respectable universities, he was a free trader "*pur sang*." In his hostility to protection he went even farther than Mill, and was accus-

tomed to protest against that author's well-known exception to the doctrine of free-trade, in favor of new countries and rising industries. No Englishman more thoroughly believed in the applicability of free-trade to all countries, and no one could, with more zeal and consistency, have pressed its adoption by the United States. But he saw clearly that this was not the pending issue; that the cry of "Morrill tariff" was a pretense and a sham, and that the war was concerning slavery, and not about rival systems of trade or taxation. He studied, very carefully, the antecedents of the war, in their social and political, as well as commercial, aspects. He applied to this investigation the same severely logical method, which placed him at the head of recent writers on political economy in England. In respect to tariffs, he found that the course of legislation in America, up to the war, had steadily tended in the direction of free trade; that the manufacturers of New England, once the stronghold of protection, had passed out of the category of high protectionists; and that the iron masters of Pennsylvania, stood almost alone in that position. He observed that, although the South had long been avowedly in favor of free-trade, it was, nevertheless, from that section that the progress of liberal legislation received its check.

"If free trade," said he, "be the real object of the South, how does it happen that, having submitted to the tariffs of 1832, 1842, and 1846, it should have resorted to the extreme measure of secession while under the tariff of 1857, a comparatively free trade law?" "The most liberal tariff which the Union ever enjoyed since 1816, was the tariff of 1857, and it was while this tariff was in force, that the plot of secession was hatched, matured, and carried into operation."

As to the Morrill tariff, he pointed out the fact that it was passed after the Southern senators had left their seats to carry out the secession programme, and that there were many circumstances to indicate that they actually promoted its passage, for the sake of the capital they might make out of it in England. The fact that Mr. Toombs, of Georgia, voted for the bill, which he could hardly have done from any friendly motive, was one of those circumstances.

"The real and sufficient cause of the present position of affairs in North America," wrote Professor Cairnes, "appears to the writer to lie in the character of the Slave Power—that system of interests, industrial, social, and political, which has, for the greater part of half a century, directed the career of the American Union, and which, now embodied in the Southern Confederation, seeks admission, as an equal member, into the community of nations. If I do not greatly mistake the import of the considerations which will be adduced in the following pages, their effect will be to show that this Slave Power constitutes the most formidable antagonist to civilized progress which has appeared for many centuries; representing a

system of society at once retrograde and aggressive; a system which, containing within it no germs from which improvement can spring, gravitates inevitably toward barbarism, while it is impelled by exigencies inherent in its position and circumstances, to a constant extension of its territorial domain. The vastness of the interests at stake in the American contest, regarded under this aspect, appear to me to be very inadequately conceived in this country; and the purpose of the present work is to bring forward this aspect of the case more prominently than has yet been done."

In a lecture delivered before the Young Men's Christian Association of Dublin, in October, 1862, entitled "The Revolution in America," our author addressed himself, even more directly, to overcoming the existing misconception as to the issues of the war.

In this lecture he traced the history of slavery from its half-concealed recognition in the Federal constitution, up to its final struggle for equal possession of the territories; showed how it had been, not persecuted, but aggressive; and how it had cowed the manhood of the Northern people, through the subserviency of the Democratic party. He avowed himself no admirer of American democracy, while admitting that the democratic principle had never yet had a fair chance in this country. "For the last forty years," he said, "the course of the United States has been a retrograde course." "I trace the national decline to something with which, where it exists, anything but decline is impossible—to complicity with a great sin."

It is not a little remarkable that, through the whole of this vigorous and unselfish defense of an unpopular cause, Professor Cairnes was never hopeful of the maintenance of the Union. "The restoration of the Union, in its former proportions, appears to me," he says, "absolutely chimerical." The most he hoped for was "to recover large districts in the Border States, already substantially free, and to throw back the destroyer behind the barrier of the Mississippi."

The last of Professor Cairnes' publications on American questions, was an article in "*Macmillan's Magazine*" for August, 1865, on "Negro Suffrage." It grew out of a conversation, a few weeks earlier,—at which the writer was present,—at Mr. Mill's house. The future status of the South was a subject much discussed in the United States, at that time, and one on which there was a wide diversity of opinion in the Republican party. Mr. Mill favored the immediate admission of negroes to the suffrage. "You must choose," he said, "between negro suffrage and military government; either the negro must be empowered to protect himself, through the ballot-box, or the Federal government must protect him by a standing army." In answer to the objection that the people of the United

States had already experienced the evils of an ignorant suffrage, in the Irish vote, and dreaded to see such suffrage enlarged, he said: "I admit that it is a choice of evils; but of the two, the negro vote is the least formidable, and it is one which you may hope to see rapidly effaced by the good instincts of the negro, and his ambition to educate himself and better his condition; military government, on the other hand, would be, for you, an unmixed evil; it is antagonistic to all the institutions of your country, and a healthy reconstruction of the South could hardly be effected under its auspices."[1]

Professor Cairnes' article in "*Macmillan's Magazine*," was the fruit of this conversation. Knowing the despotic instincts of slave society, he feared that the state of bondage would be in some way restored, if the freedmen were left in the power of their former masters:

"The heart of the evil is the monopoly of power possessed by the dominant caste, and nothing which stops short of breaking that monopoly, will reach the evil in its vital source. To constitute protectors of the negro's freedom, the very men who have just been defeated in a desperate conspiracy to render their bondage perpetual, would indeed be a bitter jest. Plainly there is but one remedy: the freedmen must be made the guardians of their own rights."

The example of Jamaica forcibly illustrated this view of the case. Judged by the well being of its whole people, Professor Cairnes asserted, what has often been denied, that emancipation in Jamaica was not a failure. "This result, however, has not," he said, "been achieved without a struggle, in which difficulties have been encountered quite analogous to those which beset the revolution we are now witnessing in the Southern States."

The Jamaica planters, in their House of Assembly, did everything possible to defeat the beneficent purposes of the measure.

"Only the perpetual interference of the English government," said Professor Cairnes, "has prevented the enfranchised negro from becoming reduced to the condition of a serf by the selfish partisan legislation of the planters. Here is a picture in miniature, of the dangers now threatening the experiment of emancipation in the Southern States, with this difference, that the exasperation of the Jamaica planters was a mild sentiment compared with that which is now felt by the defeated Confederates; and with this further difference, that the Union once reconstructed, State rights once recognized, there will be, in America, no Imperial government to interpose its shield between the negroes and their enraged masters."

[1] If Mr. Mill could have then foreseen the results of negro government in South Carolina, Louisiana, and Mississippi, as they have since existed, and still exist, and the readiness with which the colored race has fallen a prey to the influence of corrupt and unscrupulous white men, he might have been willing to recommend even a military government, capable of making itself obeyed and respected, with all its drawbacks.

Taking the whole series of these publications together, there is nothing in the literature of England or America, which will carry into history, in so condensed a form, the real issues of the American Civil War. There is no other analysis of slavery, in all its various forms and relations, to the master, to society, to the state, and to civilization—which is so searching and so fatal. The institution is not condemned on the narrower ground of its hostility to Christian religion, but on the broader ground that it sins against human nature, and is fatal alike to man's moral, and material, progress.

That these arguments should have been wrought out, in the secluded life of a student wholly unknown to the country whose interests he espoused, and wholly unconnected with it by personal ties or sympathies; justifies the eulogium pronounced upon Professor Cairnes by one of his early associates, and constant friends: "I have never known a man who was a more sincere lover of justice, or a more earnest inquirer after scientific truth."

## IRISH EDUCATION.

It remains to consider a very important chapter in Professor Cairnes' public life; namely, the part which he took in the question of Irish Education. This question, which is identical in principle with that now agitating the public mind of the United States, and which seems likely to enter largely into the coming elections, both national and local, is probably not well understood in this country. The main difference between the Irish question and ours, is, that in Ireland, the contest has related to unsectarian education in colleges and higher institutions of learning; while, in America, owing to the absence of universities supported by government, or by taxation, it is necessarily confined to the common school system. Professor Cairnes took a leading part in this Irish question, from the time of his appointment to a chair in Queen's College, Galway, up to the final defeat of Mr. Gladstone's University bill, in 1873. Of the defeat of that measure, the London *Times* has said, "it is not too much to say, that Professor Cairnes was the unseen center of the operations that exposed the character of that bill and destroyed it."

A system of mixed or undenominational schools, for the poorer classes of Ireland, was one of the reforms introduced by Lord Grey's government in 1831. Under this system, secular was completely divided from religious education, the latter being carefully inculcated by both the Catholic and Protestant clergy, to children of their own faith. It worked well, and received abundant popular support.

Hundreds of thousands of children, of whom far the larger number were Catholics, were thus educated, under conditions fitted to emancipate them from sectarian rancor, and an element of great social bitterness seemed in a fair way to be eliminated from Irish life. No provision was, however, at first made for higher education on the mixed plan, and its benefits had not reached the middle and upper classes of Ireland. The venerable Trinity College, Dublin, even prior to the act of Union in 1800, had opened its doors to Catholics, for admission to degrees, and had, by subsequent liberal measures, freely admitted them to its Senate, and Parliamentary constituency, and to a large portion of its emoluments, being, in this respect, far in advance of Oxford and Cambridge; but it, nevertheless, remained so essentially a Protestant institution, that Catholics were slow to avail themselves of its privileges. They had Maynooth College for the education of the priesthood, but it was a poorly endowed and feeble institution, while Trinity College took rank with the most learned universities of Europe, and, as Mr. Gladstone stated in the debates of 1873, was the richest college in Christendom. The condition of the Protestant Church-establishment in Ireland, was one of the vexed questions in the Reform Cabinet of 1830, and led to the dissolution of Lord Grey's ministry in 1834. It is a striking instance of the tenacity with which Englishmen cling to, and defend, vested rights, that this establishment, though utterly indefensible, and an object of constant assault, was not finally abolished till 1869. One of the measures resorted to, in the interval, for the purpose of pacifying Catholic sentiment, was the liberal endowment, in 1845, of Maynooth College, by which means it was placed upon an independent and respectable footing. As a counterpoise to this measure, and as a result, also, of the successful maintenance, since 1835, of the London University, (a non-sectarian institution, designed, mainly, to meet the wants of Dissenters, who were still excluded from degrees at Oxford and Cambridge,) the government of Sir Robert Peel carried through a bill in 1845, incorporating three non-sectarian colleges in Ireland, to be located at Belfast, Cork and Galway, and to be known as the Queen's Colleges. "The new collegiate system was avowedly an extension, and nothing more than an extension, of national education, from the children of the humblest to the children of the upper and middle classes." The Queen's Colleges went into operation in 1849, and in 1850 they were erected into a University, with a Chancellor and Senate, clothed with the power of granting all such degrees as were granted by other universities or colleges, to students

who should have completed, in any of the colleges, the prescribed courses of education.

In view of the essential fairness of their constitution, of the liberality just shown to the Catholic clergy in the endowment of Maynooth, and of the fact that they were the "natural completion and crown" of the system of national schools, the success of which had been long established; it was reasonably expected that the Queen's Colleges would be received, by the Catholic population, with the same favor which had been accorded to the schools. And such, at first, was the fact. The highest Catholic ecclesiastics, Murray, Archbishop of Dublin, and Croly, Bishop of Armagh and Primate of Ireland, joined heartily, with the representatives of the Queen's government, in arranging the plan of administration, in which Dr. Murray himself took a conspicuous part as a member of the university senate. Unfortunately for Ireland, both these eminent ecclesiastics died within two years after the university was established, and the successor to both of them (the two sees being held by him in succession) was Dr. Cullen, who, for thirty years previously, had been Director of the Irish department of the Papal government at Rome, where he enjoyed the special confidence of the Pope. Since the arrival of Dr. Cullen (now raised to the dignity of Cardinal), an entire change has been wrought in the sentiments of the Irish priesthood. Prior to that event, the spirit of that organization was largely national, but under his rule, the higher clergy have become an almost purely Ultramontane body, absolutely devoted to ideas of which Rome, and not Ireland, is the inspiring source.

One of the first official acts of Archbishop Cullen was to convene a synod, at Thurles, for the express purpose of condemning the mixed collegiate system. In this matter he acted under the direct commands of the Pope, and the Sacred Congregation of Rome. In spite, however, of the action of the Holy See, the purpose of the synod would probably have been defeated, if it had not been for the illness and absence of two bishops, friendly to the colleges, but whose substitutes, appointed under the influence of the archbishop, voted against them, and thus secured a hostile majority. To quote the language of Professor Cairnes, "the condemnation of the colleges was carried by a majority of one, and this slender triumph was obtained by questionable means—through an accident, improved by an artifice."

In place of the condemned colleges, Dr. Cullen, still acting under the immediate direction of Rome, established a new college at Dublin, entitled the Catholic University; and the rites of religion

were solemnly denied to those Catholics who should thereafter accept education at the obnoxious institutions. That any Catholic youth should have ventured to brave the anathemas of the Church, by continuing to do so, proves that the national spirit was not wholly dead among the Irish people. Though the numbers decreased, many still continued to attend them. Without going into the figures, about which there was afterwards much controversy, it is enough here to quote the assertion of Professor Cairnes, made in his first pamphlet on the subject, published in 1866, "that the colleges had, since their establishment, trebled the number of Catholic laymen in Ireland receiving university education."

No sooner was the opposition of the Catholic clergy plainly pronounced against the mixed collegiate system, than the question became necessarily a question of national politics. Out of the six hundred and fifty-eight members composing the House of Commons, Ireland sends one hundred and five, of whom a large number are Catholics, and there is always a compact and uncomfortable body of Irish members needing to be conciliated by the party in power. The united character of the Irish representation, may be judged from the fact that sixty of them are, at this moment, classed as "Home Rulers." Just as English parties, on the eve of a general election, look about anxiously for a "cry," so Irish members are always on the alert for a "grievance." The oppressive nature of unsectarian education was seized upon as such a grievance, and so dexterously was it worked, that in 1865 the ministry of the day, (Lord Palmerston's) felt called upon to give pledges for its removal. In the session of that year, an Irish member having introduced a motion to give a charter to the Catholic University, the government made a counter proposition to affiliate that institution, as a distinct college, with the Queen's University. The proposal excited not a little alarm among the Protestants of Ireland, and during the recess, and before the assembling of the new Parliament elected in that year, the subject was much discussed in the newspapers. Professor Cairnes engaged actively in it, through the columns of the *Daily News*, having made a convert of that paper, as well as of his friend Mr. Mill, then just elected to Parliament. We will let him state the events which followed, in his own words, contained in a letter addressed to the writer in March, 1866.

"While stopping for a day or two in Dublin, on my way to Galway in February, intelligence arrived that the Irish university question, of which I told you something when you were here, was on the point of being definitely settled, and (in my opinion,) in the most disastrous manner, by the fiat of the Executive, without bringing the

matter before Parliament at all. As I had been in communication with several members of Parliament, belonging to different political sections, on the subject, it was thought desirable by my friends, that I should return at once to London and urge our friends to take instant steps to stop the proceeding. I accordingly returned, and you will probably have seen, by the papers, the effect of our operations. They have been, so far, entirely successful; and I think, now, that there is every prospect that this government intrigue—for the affair is simply an intrigue with the heads of the Roman Catholic church—will be wholly defeated. The cause has made great progress since I spoke to you on the subject. Mill is now wholly and heartily with us, and so are all the best of the independent Liberals, both in Scotland and England; while the Tory party has taken our side, partly from old anti-popery prejudice, and partly from party considerations. On the night on which the question was brought forward in the House of Commons, by Sir R. Peel, (who has taken charge of the Queen's colleges, as in a manner an heir-loom, his father having founded them,) our party mustered so strong, that Gladstone came down and gave the House his assurance, that no step would be taken till Parliament had an opportunity of expressing its opinion on the question, and added, what was in fact an untruth, that the Government had never intended to act otherwise. Accordingly, the matter stands over for some time, and I am rather sorry that it was not then brought to issue, for had this happened, the government would infallibly have been beaten. The feeling of Parliament was, however, on that occasion, so unequivocally exhibited, that I think it is now very likely that the government will seek opportunity of backing out of the whole affair."

He severely censured the course of Mr. Gladstone on this occasion:

"Instead of seeing, as any one with eyes might see, that Ireland is only to be permanently pacified by dealing boldly with the land and church questions, his notion has been to rule her through the priesthood, giving up to them, in consideration of their aid, the one thing in which Ireland is superior to England, the one thing in respect to which Catholics have no grievance to complain of—its educational system. As I have already said, however, I have good hopes that, in this policy, he will be foiled."

The hope thus expressed was destined to an early disappointment, and if the action taken had been legal, the issue would, after all, have been finally settled by the fiat of the Executive, in spite of the pronounced hostility of the House of Commons. The sequel has been concisely stated by Professor Cairnes in the last of his published papers on the Irish university question.[1] Notwithstanding Mr. Gladstone's assurances to the contrary, and although no opportunity had been given, in the meantime, to discuss its provisions in Parliament, the government in June following, at the very end of the session, granted the supplemental charter, and procured its acceptance by the senate of the Queen's University, through the votes of

[1] "The Present Position of the Irish University Question."—1873. (Political Essays, No. VII.)

six additional members, appointed by the crown, and whose offices were created by the very charter which they accepted. The bad faith of this measure was the more conspicuous, from the circumstance that when the great seal was affixed to the charter, the government had already resigned, having been defeated on Mr. Gladstone's Reform bill, and were only holding their offices in trust, till their successors should be named. At such a time, it is not usual for ministers to take any step, which is open to controversy. On an issue presented, the Irish Court of Chancery set the supplemental charter aside, as in derogation of privileges created under the existing charter.

After this signal discomfiture, the question rested until the session of 1873, when Mr. Gladstone brought in a new and comprehensive scheme, for settling the future of Irish Education. He unwisely made it the test question of the session, and staked the existence of his government upon it. Although supported by one of his ablest speeches, the measure was defeated, and he resigned. The refusal of Mr. Disraeli to form an administration, under the peculiar condition of parties which then existed, led to a resumption of the seals by the defeated ministers; but the Irish question was thenceforth abandoned, and it may be conjectured that, for some time to come, no government will attempt the hazardous task of reviving it.

The main features of the bill of 1873, may be briefly stated. It aimed to abolish both of the existing universities, that of Dublin as well as the Queen's University, and to create a new one, to be called by the old name, the "University of Dublin." It would abolish, also, the Queen's College at Galway, and affiliate the two remaining colleges of Cork and Belfast, as well as Trinity College, Dublin, the Catholic University, and Maynooth and Magee Colleges, with the new institution. Other colleges might be added in future, at the discretion of the University Council, which was to be composed, partly of members appointed by the crown, and partly by nominees of the several colleges. After a certain period, the colleges were to nominate all the members of the council, and it was this feature which alarmed the Protestant body in Ireland and in the House of Commons. They feared that the Catholic element, always positive and always aggressive, would ultimately dominate over the lukewarmness of the Protestant members; and that in such a contingency, the whole system of higher education in Ireland would lie prostrate at the feet of the Catholic church. Some of the concessions of the bill also gave great offense to Protestants. That no controverted questions might arise in the course of instruction, in which members of both

religions were to participate as teachers and pupils, the subjects of theology, moral philosophy and modern history, were stricken from the curriculum, and penalties were imposed upon any teacher who should willfully offend the conscientious scruples of those under his instruction. These were known as the "gagging clauses" of the bill, and were much censured and ridiculed in the debates. Professor Cairnes argued, with great force, that an institution thus gagged and emasculated, could not properly be called an institution "for the advancement of learning." He showed that, while instruction in only three subjects was forbidden, there remained a much larger number of subjects, embracing many of the exact sciences, and political economy, which could not be taught by a professor of either faith, in a manner satisfactory to students of the other faith.

"The vital essence of the bill," he said, "is to be found in the attempt to fuse into a single composite whole, two mutually repugnant and incongruous elements. Mr. Gladstone proposes to bring together in the same system, and to compel to work in harmony towards a common object, two schools of educationists who have no common object; whose ideals of education are not merely different, but essentially antagonistic and incompatible. The difference is radical and profound; it turns not on means, but on ends."

Such, in brief, is the history of the most remarkable of the recent struggles of the Roman Catholic church against secular education. The same struggle is going on in all countries where the authority of Rome is not already supreme. Deprived of its civil power, the Papacy seeks to subordinate the authority of other governments over its sectaries, to its own ecclesiastical supremacy. It is this attempt which has brought down upon the church the iron heel of Germany, and it is this which is now causing a reaction in England against the Romanizing tendencies lately so manifest in the Anglican communion. In Italy, it has secularized education to a degree unknown in Protestant countries: the Faculty of Theology has been extinguished in Italian universities, and there is no Christian nation over which religion has so loose a hold. In his latest publication,[1] Mr. Gladstone appeals to the Italian people not to abandon Christianity because it has cut itself loose from the authority of Rome. He does not fail to recognize in the Catholic church of Italy, purposes, to the existence of which he has blinded himself, in Ireland. He says that the Roman court "aims at nothing so sedulously, prizes nothing so highly, as the total

[1] "Italy and her Church,"—an article in the Church Quarterly Review.

removal of the clergy from the general open atmosphere of human life and thought;" that the Roman Curia "is a political institution enslaved to the Jesuits, and sworn to make war on modern civilization." He challenges as a dangerous enemy to society "the ultramontane minority, which pervades the world; which triumphs in Belgium; which brags in England; which partly governs, and partly plots in France; which disquiets, though without strength to alarm, Germany and Austria; which is weaker, perhaps, in Italy than in any of those countries; but which is everywhere coherent, everywhere tenacious of its purpose, everywhere knows its mind, follows its leaders, and bides its time."

# BARDISM.

BARDISM, and the Druids of Ancient Britain, to whom we trace its origin, are subjects concerning which many erroneous impressions prevail, and of which readers in general have very little knowledge. Few are aware, for example, of the fact that, among the descendants of the ancient Britons, there exists to-day an order whose origin is involved in the mysteries surrounding a race, which was coeval with the Jewish nation, and whose history is lost in remotest antiquity. To dispel the prevailing prejudices concerning the Druids of Britain, and to cast new light upon Bardism, will be the chief province of this review.

## BARDISM OF THE DRUIDIC PERIOD.

By Bardism is meant the primitive system of instruction, knowledge and morals, among the Britons. The only part of this system which has been continued in public use is its literature, the chief representative of which, at the present time, is the Bard, in the character of poet. It is true that the poet held an important place in the ancient system, and there is no doubt that the greater part of the instruction conveyed from age to age by tradition, was in the metrical form, as the one best calculated to impress it upon the memory. Nevertheless, the office of the poet was but a part of the Bardic system, carrying with it special and peculiar duties in the Circle of Judicature. The officers of the Circle were the Druid, the Bard, and the Ovite. The Druid was the priest and the divine, the superintendent of religion and morals; or, according to ancient authority: "The Druid is a bard, according to the reason, nature, and necessity of things; and his office is to instruct." The "Bard" was the instructor, whose duty it was to administer lessons of wisdom, and his "Avenite" was the one who received instruction in introductory studies, art and the natural sciences.

We find that among the Britons, not only were instruction and religion under the superintendence of the Druids in conjunction with the Rites of Bardism, but that the political concerns of the nation were

also in their hands; for, besides being the ministers of religion, they were juridical magistrates, and the chief advisers of the State. With a sphere of influence so extensive as to include its political and religious government, it is clear that the welfare of the nation was also almost entirely in their hands. If, therefore, we compare the national status of the Britons under the control of the Druids, with the condition of contemporary nations, we shall obtain more intimate knowledge of the influence of their rites in the pre-christian period. The advance made by the Britons in the path of civilization by means of Bardism, together with the position taken by the Britons through its instrumentality in the Christian era, will best indicate the character and extent of its influence.

In following this comparative method, we shall not be drawn aside to consider the creed of the early Britons as on a par with that of the Patriarchs, who were influenced by divine guidance; nor shall we be misled by those who would lower their character, through want of knowledge concerning them, and whose ignorance has produced the well-known prejudice occasioned by the charge that they were low and savage idolaters, without a virtue to qualify their condition.

It is an important fact in British history, that, while the Welsh have been deprived of their independence, they are still a distinct nation, whose history is interwoven with the threads of the world's civilization, from the spot where rested the Ark on Oriental Ararat to the Western parts of the American Continent. They speak the same language on the coast of the Pacific, where the sun daily smiles his parting gleam before going to his watery bed,—as if in approval of the ancient saying, "In the face of the sun and the eye of light,"—as that which their forefathers spoke on the shores of the Euxine, where they imparted a meaning to the mountains of the Crimea, which made them eternal pyramids, toward which the nation may again turn to make researches into "The learning of the good old Kymmry."

These thoughts lead us back to an early period of the world's history, to the Kymmric primitive estate, in reaching which, we pass by, and leave behind us, the cemeteries of whole nations—born after the Kymmric nation was fully-grown—whose languages, like themselves, are dead, while, behold, the Kymmric race, an eye-witness erst of their pomp and greatness, still lives to tell their story.

We can not regard this national endurance without perceiving in it the hand of divine Providence; and we know of no reason to which we can better attribute it, than to the fact that the Sustainer

of the Universe regarded the customs of our ancestors in pre-christian ages, as calculated to prepare them for the reception of Christianity in the way in which they received it. Their unexampled adherence to the purity of their established principles, and their zeal for them, favors this supposition, as does also the fact that nothing is to be regarded as truly Kymmric which will not bear inspection in the light of Christianity. The consideration of these facts leads us directly to Christianity as the test-stone of Bardism. And we find, upon inquiry, that Bardism has been the chief medium to which the British Kelts owe their privileged position among the nations of the world, and that it was a leader by the light of nature to the brighter and purer splendor of the Sun of Righteousness.

As already mentioned, the only fair method of estimating the worth of the British character under Druidic rule, is by a comparison of the condition of the Britons with that of contemporary races. In making such comparison, we ought not to divest the Britons themselves of the imperfections incident to humanity; nor would it be fair to attribute the corruption of the masses to the Druids, as the result of their principles, any more than it would be fair to charge the immorality and savagery of the lower orders at the present time, to the defects of Christianity. Before the Christian era, every nation, but the Jewish, was considered as pagan. This nation had the true religion, with the ten commandments of the Law, together with all their ceremonies, divinely given, and was attended by God's particular care, support and guidance. Nevertheless we find the Jews deviating from God's commandments, and corrupting themselves, with superstition and idolatry, to such an extent as to bring upon them the divine displeasure in severe judgments. They, had a revealed Law as their instructor. The instructor of the Druids, was Nature; she was their Bible, and its pages were her statutes, read "In the Face of the Sun and the Eye of Light," while the seasons were its contents, and the stars its index.

Our task now will be to trace the parallel between the Jewish nation,—God's own people,—and the Druids, in respect to learning, morals, and ceremonies, as contrasted with other pagan nations who had a like origin and possessed the same natural advantages.

Such merits as the Britons possessed under Druidic instruction we must attribute to their means of government—the Bardic Rites. This we demand, for it would be the extreme of inconsistency to glory in a national antiquity, while despising the medium through which its characteristics have been preserved from age to age. This

would be like despising the metal ark which has inclosed historical treasures intact from the destructive conflagration; or the ship which has borne national heritages over stormy billows against the rude cross-winds of the ages. For it is evident that these national characteristics have been preserved in the bond of Bardism, as the life-boat which the storms of forty centuries have failed to destroy.

Bardism directs us toward her Neptune, landing on the Armenian Mount after being a year and a day in his ship of gopher wood, greeting him in the words of the Christian Bard, Davydd Jonawr, with a Happy New Year and also a New world. Here we have a special promise of God's enlargement of Japheth, eldest son of Noah, father of the new world; and in connection with the descendants of his sons Gomer and Javan, it is said, "By these were the Isles of the Gentiles divided in their lands; every one after his tongue, after their families in their nations."[1]

In order to trace accurately the descent of the Kymmry through the line of Gomer, it would be difficult to find any thing more comprehensive and significant than that which we find in the tenth chapter of Genesis on the generations of Noah. No other tribe has realized this spreading abroad, to such an extent as have the sons of Gomer. The Keltic race had, at the time of authentic history's dawn, so thoroughly spread over and occupied Europe, that the Greek geographers called that quarter of the world "Keltica."

Pharaoh was a name or title belonging to all the kings of Egypt, and was derived from "Phra," the Sun. After death, the Pharaohs were worshiped, together with the sun, and moon, and wild animals, as is shown by the hieroglyphics. To Moses, a man learned in all the wisdom of the Egyptians, was intrusted the work of leading forth the children of Shem from under the tyranny of their oppressors. In reading the history of this race, we discover a remarkable similarity between their customs and rites and those of the Druids.

The practice of using stones at various ceremonies has continued since the age of the Patriarchs. We find that Jacob arose early, taking the stone which he had placed as a pillow under his head, and placed it for a pillar, pouring oil upon it. It is said of Joshua, when he made a covenant with the people at Sechem: "And Joshua wrote these words in the Book of the Law of God, and took a great stone, and set it up there under an oak that was by the sanctuary of the Lord. And Joshua said unto all the people, Behold this stone shall be a witness unto us; for it hath heard all the words of the Lord

[1] Genesis x. 5.

which he spake unto us; it shall be therefore a witness unto you, lest ye deny your God."[1] On the same stone, on another occasion, Abimelech was made king. Stones were erected to mark places of victory, as at Mizpeh, where the stone was entitled "the stone Ebenezer."[2] We read also of a stone that was made famous by the resting of the Ark of the Covenant upon it—a stone that was previously known by the name of the "Great Stone of Abel."[3] The most distinguished example of a monumental circle is furnished us by Joshua at Gilgal, and the word Gilgal itself signifies *Circle*. The stones, twelve in number, were brought from the bed of the river, and within the circle composed of them, Samuel held his yearly court. Here Saul was made king, and here Elijah occasionally tarried.

What wonderful histories tell these stones! and yet the surrounding people were not so conversant with the ceremonies connected with them as were the Druids. That is a remarkable coincidence where the Druidical ceremonies before the Sun are found, copied, in the arrangement of the tribes in their tents at the camp, when Moses and Aaron received commandment to place the ensign-bearers of Judah's camp to the East, the Rising Sun.[4]

The universal inclination of nations to idolatry is worthy of remark. This tendency was so strong in the Jews, that we find even the serpent raised by Moses in the desert, becoming an object of worship, and incense burnt to it by the Israelites.[5] It is a remarkable fact that there is hardly a nation on the face of the earth which has not been given to serpent-worship, and several examples are extant at this day. But there is no proof that the Druids of Britain were serpent-worshipers, though the serpent was employed by them emblematically. Researches into their ceremonies have shown the contrary. Idolatrous corruptions, such as those of Egypt, were corruptions of the pure religion of Noah, and when we compare the nations of the world, we find that besides being free from false gods, the Druidical Kelts were less addicted to these corruptions than any other race. The only evidence of Druidical superstition is found in connection with Gaulish priests bearing the name of Druids; a corruption that had been introduced among them by the Greeks.

The Kelts, in accordance with prophecy, extended their boundaries farther than any other people, and therefore traveled farther from their national cradle in their migration from Deffrobani across the continent of Europe, along the line of the Black Sea and the

[1] Joshua xxiv. 26–27.
[2] 1 Sam. vi. 15–18.
[3] 1 Sam. vii. 12.
[4] Num. ii. 1–3.
[5] 2 Kings xviii. 4.

mountains of the Crimea, to their destination in the Isle of Britain. Nevertheless, when Cæsar landed on the eastern shore, and planted his silver eagle on the Kentish hill-side; and even when Suetonius Paulinus massacred the Druids of Mona; there, far away from the turmoil and struggle of the outer world, the natives had lived on through ages, from a time far beyond the scope of any chronology, continuing the simple customs and ceremonies of the patriarchs. Although Nineveh carved her winged cherub, and bent the knee to the eagle-headed Nisroch, and Egypt worshiped her Isis and her Apis, there was neither an altar nor idol in any part of the west of Britain, from Anglesea to the end of the Cornish promontory. There were only the green sward, and the logan-stone and cromlech, to bear witness to the same God whom Noah acknowledged when he went forth from the Ark.

Bearing in mind the allusions already made to the Druidical altars of worship, we shall now approach a subject that has caused much anxious inquiry and perplexity in the minds of men, and the misunderstanding of which has created so much prejudice against Druidism and the Bardic Rites. We refer to the "Runic Nôd."

This Nôd, or Sign, however, presents itself with a duplicate claim for our consideration; there is a Bardic, and also a Judaic, or a physical and a Biblical, view of it. It should be understood that it is God's own peculiar "Name" which is a mystery—an unspoken word; that is to say, the burden of the sacred motto, the "Divine Name," consists of /I\, or the *unutterable name*.

When the Israelitish race was in cruel bondage under the iron hand of the Egyptian, and Moses, a refugee of forty years in consequence of the outburst of his patriotic feelings, was tending the flock of Jethro in Midian; this Moses saw a bush in flames, but without being consumed. And when he turned to behold the sight, "God called unto him out of the midst of the bush, and said, Moses! Moses! And he said, Here (am) I. And he said, Draw not nigh hither; put off thy shoes from off thy feet; for the place whereon thou standest is holy ground."[1] Subsequently, Moses was commanded by the same authority to go to Pharaoh, and take measures for leading the children of Israel out of Egypt. In that conversation, "Moses said unto God, Behold (when) I come unto the children of Israel, and shall say unto them, The God of your fathers hath sent me unto you; and they shall say to me, What is his name? what shall I say unto them? And God said unto Moses, I AM THAT I AM; and he said,

[1] Exod. iii. 4–5.

"Thus shalt thou say unto the children of Israel, I AM hath sent me unto you. And God said moreover unto Moses, Thus shalt thou say unto the children of Israel, The Lord God of your fathers, the God of Abraham, the God of Isaac, and the God of Jacob, hath sent me unto you; this is my name forever, and this is my memorial unto all generations."

The people of the present age have a better opportunity to understand the meaning of what is called the "Unutterable Name," than that afforded in former times; for now we have authoritative works on Biblical Proper Names, and treatises on various Scripture topics; and to add to this, we have historical information concerning the mode of preserving, as a mystery, the peculiar Name of God among the Jews, according to the provisions of the Kabbala, or Secret Literature, and are acquainted with the fact that pagan nations were in possession of similar mysteries. But it is worthy of remark that these authorities, so far at least as we have observed, make no allusion to the Bardic mysteries, a circumstance that goes to prove how independent of, and separate from other nations, the Kymmry have been in respect to their literature and ceremonies.

Learned men, who have given attention to this subject, are agreed that the word, translated above, "I am," is not a verb of the present tense only, in the original language, but that it represents at least two tenses, the present and the future, as, "I am and I shall be," and, in the form of a special verb, the word signifies "I am that which I shall be." Bengel attributed to the word three tenses, as embracing the words of John the Divine, "which is, and which was, and which is to come,"[1] but his opinion does not receive the support of the most critical scholars. It is written in the Chaldee, "I am the one who is, and the one who is to be"; and, with this, the best Hebrew scholars agree, rendering the passage, "I am he who shall be, hath sent me unto you."[2]

This is the name "Jehovah." It occurs in the Old Testament in two forms, "Jehovah," and "Jah"; and this name is the original of the word "LORD," wherever that word is found printed in capital letters in our Bible. This name is exclusively applied to the Supreme Being, as his own peculiar name, having never been conferred on any other being, real or fabulous; while the other names, "El" and "Elohim," synonymous with the word God, as we find in Gen. i. 1., have been used for the names of false gods and inferior beings. There is in this something significant, as if the Infinite guarded, with

[1] Rev. i. 4, 8. [2] Exod. iii. 14.

terrible jealousy, his own name, so that the name "Jehovah," divinely protected, should not at any time be otherwise applied.

Although the verb *Byddwyv* (I am), in the Kymmric language, is assigned by grammarians to the present tense; it appears that the composition of the word, as a form belonging to that language when contemporary with the Hebrew, corresponds with the double-tensed verb in question, as, "Byddwyv (I am who shall be) hath sent me unto you." This formation pervades the syntax of the Kymmric, as if to contradict the hypercritical minuteness of those grammarians who adopt foreign languages of the modern period as standards by which to form their opinion, rather than the ancient characteristic resources of their own mother tongue.[1]

The Hebrew scholars give the syntactic construction of the verb "to be," in that sense. Wilkinson in his work entitled "Personal names in the Bible," gives an example of a similar construction in the English language, to illustrate the same subject, as "Next week I proceed to London," meaning "I shall proceed;" or having done this he "proceeded to London." Like other languages, the Hebrew passed through many changes from Abraham's time to that of Ezra, and after that, suffered such fortune as to be lost in the Aramean, and to become a dead language. The vowel points were not in use in the Hebrew before the Christian era, so that the writing of it before that time was entirely in consonants; and we learn that the consonants making up the word translated above, "I am he who shall be," are the very letters of the name Jehovah, I. H. V. H. In addition to the interpretation of this NAME, there is in the Iolo Manuscripts, a note referring to the following line in the ode of "The Secret,"

"The best portion of Scripture, the *word unknown*,"

"The import of which,—according to this note,[2] is, as generally rendered, in perfect accordance with our authorized translation; 'This is my name for ever, and this is my memorial unto all generations.' Now according to the Rabbins, this is a false translation; for the word לעלם which we render "ever," signifies also "hidden" and "secret"; so that the interpretation of the passage, as they contend, is, "Let this my name be secret; keep this in remembrance for all generations."[3]

Gesenius says that the Jews, for centuries before the Christian era, either through misinterpretation of articles of the law, such as "Thou

[1] An example of this error will be found by referring to H. Tegai's Grammar, p. 137.
[2] Referring to Exodus iii. 15. [3] Iolo MSS. p. 691.

shalt not take the name of the Lord thy God in vain" (Exod. xx. 7), which is given thus in Levit. (xxiv. 16), "And he that blasphemeth the name of the Lord, he shall surely be put to death"; or through ancient custom, considered that name too sacred to be pronounced. It is written in the Talmud, a book of Jewish laws and traditions, "He who utters the name of the Lord (Jehovah), there is no part for him in the world to come."

Now, besides the philological consideration of this word in its ordinary form among the Jews, the name is worthy of our regard as a theological and religious monument. Bearing in mind the fact that the original form of the commemorative name "Iahveh," is derived from an old form of the verb *to be*, which is supposed to have become obsolete before the time of Moses, and is scarcely to be found in the Scriptures, we discover this name in the poetic words of Isaac in his blessing of Jacob, "That thou mayest *be* a multitude of people" (Gen. xxviii. 3), and previously, in the mouth of Eve at the birth of her first-born. In the latter instance, it is acknowledged that the ordinary translation, "I have gotten a man from the Lord" (Gen. iv. 1), is not correct, but that it should be, "I have gotten the *Man*, the *Jehovah*;" and it is the opinion of the ablest commentators, ancient and modern, that Eve believed that the promise of a Saviour, or the seed of the woman who was to bruise the serpent's head, was then being fulfilled in the birth of her first-born. The theology of our first parents concentrated in this promise, and as Fagius adds, If we accept this view, that Eve saw in her seed Him who was to bruise the serpent's head, there is clear and evident premonstration of the Divinity of Christ in the word "Lord." Luther translates the passage, "I have gotten the Man, the Lord," and notes in the margin that it was he, whom Eve thought to be identical with the seed which the Lord had declared would bruise the serpent's head. That Eve was disappointed in her expectation of the "Iahveh," in the person of Cain, is indicated, it is believed, by the fact that she called her second son "Abel," meaning *vanity*. Human hope was now beginning to fade away in the expectation of the fulfillment of the promise by the birth of children, and we find that the human race in the third generation, in the days of Enos, began to call upon the name of the Lord (Iahveh), and to look directly to him for the fulfillment of the pomise; their hope having been transferred from the human mediun to the divine. The Deluge washed away from the face of the earth all hope of the restoration of Eden according to the first expectation but we find Him who revealed Himself by the

name "Iahveh," renewing His promises to men. He appeared to Abraham under the name of "El-Shaddai," God Almighty; which name was acknowledged by the patriarchs Abraham, Isaac, and Jacob; and when He renewed the Covenant to Moses, He did it through his name of "Jehovah," the memorial and mystic name. We trace this name through the whole of the Old Testament. It is the "Lord (Iahveh)" of Eve; the "Jehovah" of Moses's flaming but unconsumed bush; the "Iah" of David, the sweet singer-bard of Israel (Psalm lxviii. 4); and Malachi closes the Old Testament with the same subject which the angel of the covenant used in opening it, the announcement of the Divine Son. Thus, the whole Bible, in its historical as well as prophetical parts, has every where, like precious gems on the threads of the written volume, these promises of a Saviour, or, of "Him who is to be."

The New Testament opens with a noble realization of the expectations which the Old had created, and that, in connection with the Memorial Name. As the Old Testament begins with the promise of "Him who is to be," the New opens with the announcement of the consummation of "God with us." John begins his history with the Memorial Name, the Logos, or the Word, the interpretation of which has been the occasion of so much perplexity to scholars, but which has the same meaning as the Bardic "Llog." In the mouth of the same Apostle, as he closes the Book of Revelation, we find the ancient word "Iaveh," I am He who shall be, christianized into "Alpha and Omega, the first and the last." Whether this was the result of his knowledge of the original name, or of the influence of divine inspiration, we can not determine. The concluding lines of John of Kentchurch on the names of God, regarded as in harmony with Kymmric Bardism, bearing the initials "O. I. W.," seem to partake of the signification of these words; or of the fashion in which they are sometimes inscribed; save that the Bard's O is angular according to the manner of cutting letters on the bars of the Bardic woodenframe, thus ◇, *i. e.*, I A ◇; and this seems to assert the ancient community of Bardism with the Alpha-Omega—the Jesus—of the Revelation.

Thus throughout the Scriptures, we meet with the Memorial Name, or the Bardic Secret; to Eve it was the "One who shall be"; to Jacob, the "Angel of the LORD," to Moses, "I am He who shall be," as a Memorial Name; to Malachi, the "LORD whom ye shall seek, and the Angel of the Covenant; to Matthew "God with us", to John, "the WORD that was made flesh," and in his Revelation, "Alpha and Omega," or the IAHVEH, whom every believer, in faith,

is expecting; and there can be no better proof of the Divinity of the Messiah, and of the error of Unitarianism, than is given in connection with the history of the Memorial and Runic Name which, rightly understood, accords to Bardism an exalted character. Many theologians have been accustomed to regard the Divine appearances and communications recorded in the Old Testament, as those of the First Person of the Holy Trinity. It is plain, however, that it was the Second Person who gave the promise concerning himself; who appeared and spake as we have mentioned; and who, in harmony with his own promise, became incarnate in the fullness of time. This is a fact too much overlooked in the treatment of the Old Testament promises. Paul has given Bardic testimony (Rom. xvi. 25), to the same effect, when referring to "the revelation of the mystery which was kept secret since the world began."

In an old manuscript in the library of Raglan castle, which has been published with the Iolo Manuscripts, (p. 424) under the title of "The Roll of Tradition and Chronology," it is said:

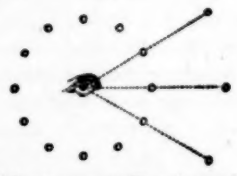
"First of all, an account is here presented of the occurrences transmitted by oral tradition, before the commencement of chronological computation. The announcement of the DIVINE NAME is the first event traditionally preserved; and it occurred as follows: GOD, in vocalizing his NAME, said /|\, and with the Word, all worlds and animations sprang co-instantaneously to being and life from their non-existence; shouting, in ecstasy of joy, /|\, and thus repeating the name of the Deity. Still and small was that melodiously sounding voice (i. e., the divine utterance), which will never be equaled again until GOD shall renovate every pre-existence from the mortality entailed on it by sin, by re-vocalizing that name from the primary utterance of which emanated all lays and melodies, whether of the voice or of stringed instruments; and also all the joys, ecstasies, beings, vitalities, felicities, origins, and descents, appertaining to existence and animation."

In the vocalizing of his NAME as above mentioned, we have Creator, Death, and Resurrection. The account of the Creation, coming into existence at the harmonious and sweet repeating of the Name, if not so authentic as the "Let there be" of Genesis, is fully as imaginative, to say nothing of its poetic beauty; for from the expression "Let there be," we have only the idea of will, and power. In the account contained in the above extract we find, also, decline and death through sin, with restoration from the effects of death to original purity, as an echo to the utterance of this name by its Owner and Author.

Like a Bard of the Mystery, Job, in whose book are to be seen several characteristics of Druidical import, wonderfully concurs with the idea that creation echoes the name of God "in the still and

small melodiously sounding voice," in those words of his, "When the morning stars sang together, and all the sons of God shouted for joy."[1] Thus, according to Bardism, no attempt should be made to utter the pure and holy Name by a sinful man, until the time of his restoration "from the mortality entailed on him by sin" when the /|\ will Himself re-vocalize it for the renovation of every pre-existence.

The /|\ further denotes the three Rays of Light. As the Sun gives life and light to nature, it came to be regarded as a symbol of the Creator, having power to effect the restoration of the physical world to the productiveness of spring, after it had subjected it to the mortality of winter, because of the withholding of its rays. The Druids possessed a considerable knowledge of astronomy, and especially of the course of the sun through the twelve signs of the Zodiac. We perceive from these facts, the appropriateness of the Kymmric word *amser*, signifying time. It is descriptive of the revolution of the year through the signs of the Zodiac, *am* (= around), and *ser* (stars), signifying the circle of the stars. The Bardic Throne, in its formation, corresponds to the passage of the sun through the signs.



The summer solstice furnishes a representation of the Creation; the winter solstice represents Him as withholding His benefits, or in the character of Destroyer; and the middle staff, or ray,[2] is a duplicate sign representing first, the renovation of Spring (Spring Equinox), and secondly, the fruitfulness of Autumn (Autumnal Equinox,) which respectively show forth the Creator as Father and Sustainer. We have here a remarkable correspondence between the facts of Nature as presented to us, and the Biblic Runic Sign, when the latter is subjected to the light of the /|\ of Bardism, and interpreted as symbolical of "Him who is and shall be." The "Resurrection and Life" Himself makes use of Nature to elucidate this subject: "Except a corn of wheat fall into the ground and die, it abideth alone but if it die, it bringeth forth much fruit."[3] And Paul adds, "(Thou) fool, that which thou sowest is not quickened except it die."[4]

It was the belief of the Bardic Gwyddonites[5] that there is a corre

[1] Job xxxviii. 7. [2] The three divergent rays in the accompanying cut are here referred
[3] John xii. 24. [4] 1 Cor. xv. 36.

[5] The Kymmric term "Gwyddon," signifies philosopher; a man of science, from the primitive mode of the aboriginal Britons inscribing their knowledge on wood—*gwydd*, or billets. From this the alphabet is called in the Welsh language *egwyddor*. *Gorsedd blyn gwyddon*, was one of three primary places of meeting of the Bards of the isle of Britain.

spondence between things earthly and things spiritual, and that this world, in its cyclic revolution, is a type of the world to come. The estates of being were divided and differently designated, as various circles revolving one into the other. We have for example the "Circles of Existence," containing the "Circle of Inchoation," and belonging more particularly to living things here upon the earth. The "Circle of Felicity" is that wherein the good are for ever happy; and of the "Circle of Infinitude," it is said that none but God can pervade it.[1]

The Bard, as he stood facing the East, on the Logan-Stone, where, at the Eye of Light, the three rays converged, was looked upon as the moral sun of the world, and also, according to Christian Bardism, as an emblem of the Trinity.

It is worthy of note here, that the Bards had a theory connected with the sun, which, according to their mysteries, makes the age of the world correspond to the Mosaic period. It is well known that the sun does not pass through the same space in the zodiac every year, a fact which involves a change in the reckoning of time. In conformity with this change, according to Bardic chronology, it is said that conventional session was in action when the sun was, in the spring, at the Point of Liberty, or the Line of the Equinox, having returned from winter solstice, or Celestial Hades,[2] to Paradise, immediately over against the Horns of Taurus. This event, according to the calculation of the *Albanau*, by the "Precession of the Equinoxes," could not have occurred less than 5800 years ago—very nearly the period which has elapsed since the time of Adam, according to Biblical chronology.

Another characteristic of the /|\ is that it comprised every form by which the Bardic alphabet can be cut, and therefore contained within itself all the elements of learning; for the letters could only be cut on wood, transversely or obliquely, and never in the direction of the grain. From the same root came the term *egwyddor*, a name applied to the Kymmric alphabet, and which also signifies principle. The element of the character, or the instinct of the mind, was called *egwyddor*, and *kelv a gwyddor* signified "art and science." So deep-rooted is the old Gwyddonic custom in the nation of the Kymmry, that the expression among them, at this day, for writing one's name, is

[1] The word circle is too limited a term to express the Bardic meaning of the Kymmric word *cylch*, especially as the residence of the Deity. "*Cylch*" is druidically used, in the sense that "state" is used, in the expressions, state of Felicity, state of Infinitude, and state of Inchoation—except that it is also a symbol of endlessness"—Note to Iolo MSS. p. 424.

[2] The words cœlus and hell were originally one and the same term.

to "cut" one's name. Hence came the expressions synonymous with "carpentering a song," or "hewing poetry," and the characterization of Llawdden's reformation of the Kymmric poetic metres, as the work of his "axe."

What we have already adduced is sufficient to refute the charge of idolatry made against the Druids of Britain. The belief in a Creator and Sustainer, a being infinite and invisible; together with the conception of man's degeneracy through sin, which rendered him too foul of lip to utter the name of that Being until the time when He himself would proclaim the /I\, when all things responding to the sound would return to original purity—these facts demonstrate that, whatever their defects, the Druids of Britain were not idolaters. However lightly those who live in the nineteenth century of the Christian era may esteem the cabalistic traditions of the Jews, and the "heathen rites" of the Druids; whatever may be thought of their custom of keeping the Name of God *unuttered;* we may ask if, after all, there is not something like an upbraiding voice arising out of these "heathen rites," to rebuke their enlightened Christian despisers who roll in their mouths the name of the Holy Trinity with such nonchalance? The truth from the Logan-Stone might well, indeed, put to the blush many supporters of Christianity, and many promoters of orthodox faith.

According to the testimony of Cæsar, the inhabitants of Gaul sent their youth to Britain to perfect their education, a fact which shows that the Druids possessed extensive knowledge, as well as purity of morals.

There is nothing incredible in the supposition that the descendants of Gomer retained the conception of the Being of God, when we remember that, on account of longevity, few generations had passed away from the time of Adam to Noah. The contemporaneous living of the patriarchs with their ancestors and descendants for centuries, afforded excellent facilities for the transmission of histories and traditions from one age to another. According to Dr. Adam Clarke's interesting table,

| | Years. |
|---|---|
| Noah and Lamech were contemporary | 595 |
| " " Methuselah " " | 600 |
| " " Enos, of the third generation | 84 |
| Japheth, father of Gomer, was contemporary with Lamech | 93 |
| " " " " " " Methuselah | 98 |
| " " " " " " Noah | 448 |
| And after the Deluge Japheth was " " Abraham | 150 |
| " " " " " Isaac | 50 |

Japheth lived contemporary with the antediluvian patriarchs, longer than Shem, for he was the eldest son of Noah; though Moses names Shem first, possibly because he was considered the progenitor of the Hebrews. Japheth thus had an opportunity to transmit all the mysteries of the antediluvian world to his children and race, for it is likely that the dispersion was effected but gradually in accordance with the increase of population.

If we examine the philological coincidents in the Kymmric and Hebrew, and other ancient languages, as recorded by scholars, these, with what we have already shown, will prove that there is nothing in Druidism necessarily incompatible with Christianity; but that, on the contrary, there was much in its ceremonies common to Judaism, and which made it typical of the Gospel of Christ; thus preparing the nation, under Bardic instruction, to embrace that Gospel. In agreement with this theory, we find that the Kymmry willingly received the Gospel upon its first presentation to them, adapting their circumstances to the Christian service; and there is credible proof that Christianity met with neither opposition nor persecution in Britain, save from pagan Rome and the infidel Saxons.

The religions of the Hindoos and Brahmins are corruptions of the old patriarchal religion of Noah. When we compare the condition of the ancient idolatrous nations, which had a like ancestry, with that of the Kymmry, and remember the manner in which Christianity, upon its first offer, was received by the latter, while the former are still clinging to their false gods; when we remark the adherence of the Kymmry to Christianity from the time of its dawn among them, and the fact that they are to-day among the most eminent defenders of its principles; what a subject is presented for our meditation! It was to the efforts of Thomas Charles, John Owen, and Thomas Hughes, descendants of the Kymmry, that the British and Foreign Bible Society owed its origin. Thus the children of those who were worshipers in the temple of Nature in the White Isle, in the language of Williams of Pantycelyn, the Kymmric Watts, have united to

> "Let the Gospel
> Loud resound from pole to pole."

In the midst of this Kymmric glory, Bardism, as the medium for the transmission of morals and learning among the descendants of Gomer, the son of Japheth, lifts up her voice from the ancient past. She claims, from the descendants of the Kymmry, acknowledgment of her services as their trusty leader through the clouds and darkness

of pagan ages, until she brought them, in spite of hostile influences, safely to the noonday of Christian light, where she still would keep their feet steady and firm in the paths of civilization, "In the Face of the Sun and the Eye of Light."

## BARDISM OF THE CHRISTIAN PERIOD.

IT may be possible that those who doubt the national claims of the Kymmry to religious, political, and literary distinctiveness, have considered our Biblical and Judaic investigations as foreign to the question. They may argue that we have no right to link together Bardic characteristics of Druidic origin, and facts in the history of the Jewish nation, the latter being looked upon as a chosen and peculiar people, and instruments in the hands of the Almighty to work out his purposes and promises touching the Saviour. But the Gentiles may claim, as has often been remarked by Christian writers, a certain degree of consanguinity with the Head of the Church, as a Root of the Stock of David through his ancestress, Ruth the Moabitess. The political estate of the Jews was on the eve of decay, and the sceptre was to depart from Judah, upon the advent of Shiloh, in the reign of Herod the Edomite. It is a fact recorded to the praise of the Gentiles, that those who had the privilege of first offering tribute to the Young Babe, were pagans, influenced not by knowledge of promises and prophecies possessed by the Jews, but by their own pagan philosophy and native inclinations, in connection with their astronomical studies. We have in this fact a strong argument pointing to the higher government of Him whose Name is JAH, indicating the manner in which he works to fulfill his purposes, using men and nations as His unconscious instruments. If it was in accordance with divine Providence that the three Magi, Gaspar, Melchior, and Balthasar, as wise men and astronomers, should be conducted to the Babe by means of their own traditions and ceremonies, it was equally in accord with the workings of Providence, that the Britons should be led to believe in the doctrines of the Gospel, having nothing in their own belief and customs to prevent such a result, and much, as we have shown, to fit them for it. Concurrently with this, as early as 175, A. D., the Bardic Rites had been wholly transferred, at least in outward appearance, to the service of Christianity; and through the earlier centuries of the Christian era, we find these Rites employed in connection with the church.

It is not within the province of this paper to inquire when and

how Christianity was first introduced into Britain; but the testimony of Tertullian, in the second century, that the Britons who had not been reached by the Romans had submitted to Christ, indicates that the Kymmry never succumbed to physical weapons. Origen, writing about forty years later, referring to the Kymmry of Caledonia, says, that "The power of the Lord, the Saviour, is among those in Britain, who are separated from our world." These early testimonies are incontrovertible proofs that some power, independent of external circumstances, had previously prepared the Kymmry for the reception of Christianity; and to what can we attribute this tillage of the Kymmric field for the reception of Christian seed, if not to previous cultivation under Bardic "Privilege and Custom" and Druidic instruction?

Not only did the Kymmric Christians for four centuries hold their religious services in conjunction with the Bardic Rites; but worthy priests and ministers in every subsequent age, while perhaps dividing the ecclesiastical from the congressional regulations, have been supporters of the Bardic cause in conjunction with literature. We could present a long list of famous poets and *literati* for thirteen centuries, who were zealous supporters of Bardic customs, while chief ornaments of the Church.

In the sixth century, a Chair was instituted called the Baptismal Chair, and a profession of the Christian religion by baptism was made a requisite of membership. As a result of this institution, Christianity and Baptism became synonymous terms in the Kymmric language; and to bring "Faith and Baptism" to any place, signified the introduction there of the Christian religion, as is made evident by many allusions in the works of the poets, and the old writings on the genealogy of the British Saints.

The motto of this Baptismal Chair was "Good is the Stone with the Gospel," which at once unfolds its purpose—of utilizing, for the service of the Gospel, that tribunal Stone which was formerly used in the service of Druidism. The general motto of the Bards of the Isle of Britain was "The Truth against the World."

In the eleventh century, the Bard was a necessary element in society, as is easily proved from the Laws of Howel the Good. We refer to this fact to show that Christianity had an influence upon the literature of that period, contrary to the impressions of writers like the Rev. Edward Davies, author of the "Mythology of the Druids," who, misunderstanding certain writings, endeavored to prove from them that in the eleventh century there was an attempt to revive

Druidism. A conciliatory address by Cynddelw to Rhys ab Gruffydd, Prince of South Wales, together with some poems of Howel ab Owain, have been used as the basis of such a supposition; but all of the Druidism of that period, is contained in Mr. Davies's erroneous rendering of the original. We may take Cynddelw's address as an example:

"O thou consolidator of the comely tribe! since I am returned home in thy dominion,
To celebrate thee under heaven,
O thou with the golden protecting spear, hear my Bardic petition.
In peace let us taste the cauldron of Prydain's tranquillity,
Round the sanctuary of the uneven number, thy sovereign power to extend.
It (the Bardic sanctuary) loves not vehement loquacity;
It is no cherisher of useless sloth,
It opposes no precious concealed mysteries (Christianity).
Disgrace alone is excluded from the Bardic worship.
It is the guardian bulwark of the breaker of shields.
It is wise and zealous for the defense of the country, and for decent manners.
A foe to the hostile aggression, but the supporter of the faint in battle."[1]

It seems that an attempt had been made to prejudice the Prince against the Christian ritual of the Bards, and the poet implores his protection of the Bardic order, showing the superiority of the worthy poets over the false bards, and defends the order on the ground that it is not at variance with Christianity. This also shows that Christianity had a strong hold upon the Kymmric princes of that time, for it is represented as the chief object of defense. Mr. Stephens, author of "The Literature of the Kymmry," claims, that besides being more classical, the Bards of those days excelled the Church in learning.

The office of the Bard had a direct tendency to foster heroism, and transmit the history of the magnanimous and brave knights from one age to another, as a national inheritance to the end of time. To be well-versed in the history of the nation was one of the indispensables of the Bardic chair, and to descant upon the brave deeds of ancestors, thus to kindle the patriotic flame in the hearts of Britons, was one of the Bard's duties. But besides inspiring patriotism, we find the ancient Bards themselves in the thick of the fight, as is indicated by their literary remains. Aneurin, in the sixth century, says in his "Gododin," that he was at the Battle of Cattræth, and that only two others escaped beside himself:

[1] Literature of the Kymmry, p. 118.

"Three hundred and sixty-three chieftains wearing the golden torques,
Of those who hurried forth after the excess of revelling,
But three escaped by valor from the funeral fosse.
The two war-dogs of Aeron and Cynon the dauntless,
And myself from the spilling of blood, the reward of my candid song."[1]

Gwalchmai, a Bard of the twelfth century, says in "Gwalchmai's Delights":

"I am of the golden order fearless in battle.
I am a lion in the front of the army—ardent in my advance,
Anxiously have I, at night, watched the boundary
Fords of the murmuring waters of Dygen Vreiddin
Where the untrodden grass was supremely green, the water limpid
And excessively talkative the nightingale well-versed in odes."

The principles of their system after the introduction of Christianity taught the Bards to look to the true God for the gifts of the *awen* (genius) and not to pagan gods, as is shown by the following triad: "The three foundations of genius: the gift of God, the exertion of man, and the events of life."[2]

One of the important results of the Bardic Institute has been indicated by Rev. Thomas Price, who says that

"In addition to their work of exciting and fostering patriotism, we are indebted to the Bards for another valuable service; they have preserved our language in a condition of purity and fullness without parallel in the later ages. Not only is this an honor to our nation, but it has also been an invaluable profit, and that in things which are of the utmost importance; for when the Protestant Reformation shone upon the world, and the Sacred Scriptures were offered to the public in popular translations, the Kymmry were in possession of a language cultivated, rich, and beautiful, as a vehicle wherein the Holy Word might appear in a form as worthy of the original as perhaps can be seen in any other translation whatever. The Bishop Richard Davies was a Bardic disciple of Lewis Dwnn, and the venerable Archdeacon Edmund Prys was himself a Bard, and the other translators were very conversant with the works of the Bards, especially Dr. John Davies. When we contemplate this translation, we can not but wonder at the abundance of words and richness of language and expression at the command of those noble writers, and that in an age when they had neither lexicon nor any thing else of the kind to help them."[3]

In the teachings of the Bards, we are led to the fountain source of that spirit of heroism which characterized Caswallon, and inspired him to his bold stand against the Roman invaders. Indeed we know that though Cæsar completely subjugated other nations, he was unable to exact from the Britons more than a *promise* to pay tribute; and there is no evidence during Cæsar's life, nor for nearly a hundred

[1] Ab Ithel's Gododin. [2] Triads of Bardism. [3] Hanes Cymru, p. 53.

years after his death, of the fulfillment of this promise. It is evident that the Kymmric nation did not improve in knowledge and morals while under the Roman dominion; but they kept their language uncontaminated by the Latin, with the exception of the Latin introduced through the church-ritual, as shown by the works of the Bards

Were we to compare the Bardic regulations with the "Parliamentary Rules," which form the standard for the regulations of the generality of associations to-day, the uninitiated would be surprised by the excellence of those of the Bardic Conventions, in respect to equity, liberality and common sense.

The Kymmric traditions so far influenced the revival of the literature of Europe in the twelfth century, that we find the legends of Arthur and the Knights of the Round Table, constituting the groundwork of the romance, legends, and literature of that Continent.[1]

Among the remains of the Privilege and Institute of the British Bards, there is nothing that exhibits the antiquity of Bardism more clearly than the CHAIR.[2]

The principal church of a Bishopric, or Diocese, is called the Cathedral church. The English word Cathedral is derived from the Greek καθεδρα, compounded from two words, κατα, and εδρα, a seat, or chair.

The chair, here referred to, chiefly denotes a source of authority, and seat of instruction and guidance, as in Matth. xxiii. 1–2, where it is recorded that Jesus spake to the multitude and to his disciples, saying, "The Scribes and the Pharisees sit in Moses' seat." The word for "seat" in the Welsh version of the New Testament is *cadair*—chair. The accepted meaning of the passage is, that the Scribes and Pharisees taught the law of Moses to the multitudes, and took upon themselves the *Cathedrate* office of teaching.

The first historical account of the origin of the Bardic chair, is in connection with a chair which was restored at Cærlleon-upon-Usk, over which the two Merddins, Taliesin and Mabon, and others, presided. It was here that the system of the Round Table was formed which was "a system of the arts and sciences, rites and privileges of Bards and Minstrels, and the preservation, where such was deemed necessary, of the worthiest of old traditions, and the discrimination of

[1] Vide Essays of the Abergavenny Eisteddfod on the "Influence of Welsh Traditions on the Literature of Europe."

[2] CADAIR, (*chair*). A seat of authority or presidency, but more particularly among the Bards; and figuratively the qualification which entitled a candidate to preside. Hence,
CADEIRDRAW, cadair-traw. A doctor or professor of science. Also,
CADEIRFARDD, (*chair-bard*). A bard that is entitled to preside at a Gorsedd. And,
CADEIRIOL. Belonging to a chair or seat; cathedral.

all innovations that would be considered of a nature calculated to improve and enlarge honorable sciences, with reference to the wisdom and interest of country and nation."[1]

A prayer, composed by Talhaiarn, has always been used at the Bardic Congress of the chair of Glamorgan. The following is one of its forms:

"God! impart thy strength;
And in that strength, reason;
And in reason, knowledge;
And in knowledge, justice;
And in justice, the love of it;
And in that love, the love of everything;
And in the love of everything, the love of God."[2]

Each Bardic chair had its distinct territory, to which its privileges were confined. The following are the mottoes of the different chairs of the Island of Britain:

1. The chair of the Bards of the Island of Britain—"Truth against the World."

2. Glamorgan or Siluria—"God and all goodness."

3. The Round Table of Arthur of Taliesin, and of Tir Iarll, (Earl's Land)—"Nothing is truly good that may be excelled."

4. Powis—"Who slays shall be slain."

5. South Wales—"Heart to heart."

6. North Wales (Venedotia)—"Jesus," or, according to an old traditional record—"O! Jesus, repress injustice."

7. Bryn Gwyddon (Abury)—"Hearing is believing, seeing is truth."

8. Devon (Damnonium) in the chair of Beiscawen (hodiè Boscawen, in Cornwall)—"Nothing is for ever that is not for ever and ever."

9. Urien Rheged (at Loughor) under the presidency of Taliesin—"Truth will have its place."

10. Raglan Castle, under the patronage of Lord William Herbert—"Awake, it is day!"

11. The Chair of Neath—"God's peace and his heavenly tranquillity."

The canons of proficiency in the art of poetry were given in triads, some of which we append:

"The three primary requisites of poetical genius,—an eye that can see nature, a heart that can feel nature, and a resolution that can follow nature.

"The three final intentions of poetry,—increase of goodness, increase of understanding, and increase of delight.

[1] Edward Williams, Preface to Cyfrinach y Beirdd. [2] Iolo Mss. p. 469.

"The three properties of just imagination,—what may be, what ought to be, what is seemly to be.

"The three indispensables of poetical language,—purity, copiousness, and ease.

"Three things that ought to be well understood in poetry,—the great, the little, and their correspondents.

"The three dignities of poetry,—the praise of goodness, the memory of what is remarkable, and the invigoration of the affections.

"The three purities of poetry,—pure truth, pure language, and pure conception.

"Three things that poetry should thoroughly be,—thoroughly learned, thoroughly animated, and thoroughly natural."

As to the genuineness of the compositions of the ancient British Bards, we presume there are, at present, no disputants; especially since the futile efforts, of Mr. Malcolm Laing and the "Critical Review" to discredit their authenticity. On the contrary, an appreciation of the poetic remains of the Kymmry has been manifested by some of the most eminent literati in England, and on the Continent of Europe. Passing by Aneurin and the works of the earlier poets, we come to Gwalchmai ab Meilir's Epic to Owain Gwynedd, Prince of North Wales, which was presented to the English public by the Rev. Evan Evans (Prydydd Hir).

The occasion of the composition of this poem was Owain's victory over the armies of Henry the Second on the shore of the Menai. Mr. Evans's free translation attracted the attention and won the admiration of several literary men, among others, the poet Gray, who produced it in metre under the title of "The Triumphs of Owain." Bishop Percy characterized it as "Gwalchmai's very sublime and animated ode," and in a letter to the Rev. Evan Evans with reference to Bards of the same period, he remarked: "I have lately been collecting specimens of English Poetry, through every age, from the time of the Saxons down to that of Elizabeth, and I am ashamed to show you what wretched stuff our rhythmers produced, at the time that your Bards were celebrating the praise of Llywelyn with a spirit scarce inferior to Pindar."[1]

Sharon Turner's "Vindication of the British Bards" is widely known. Robert Southey,[2] the Poet-Laureate of England, was so capti-

[1] Price Lit. Rem., vol. I. p. 196.

[2] Robert Southey, in a letter expressing his gratification at having been elected an honorary member of the Cymrodorion Society in Gwynedd, in the spirit of poetic fellowship, said: "This honor is peculiarly gratifying to me, because one of the works by which I hope to be remembered hereafter, relates mainly to Welsh tradition and Welsh history."

vated by these works that he made his arrangements to reside in the country which gave birth to such gifted poets, but his intention was frustrated through the parsimony of one of the lords of Glamorgan, who failed to make the necessary repairs in the kitchen of the Maes Gwyn, in the Vale of Neath. The Laureate was a great admirer of the Bard of Privilege and Usage, "Old Iolo," who, before the submarine cable, united Great Britain and America in the spirit of the Bardic motto, "God's peace and His heavenly tranquillity," by coupling together in capital letters, in the list of subscribers to his poems, the names of General Washington and Humanity's Wilberforce. The Laureate was far too much of a Liberal to induce the parsimonious Tory of the Vale of Neath to add to his culinary comforts.

To the same bard, Leigh Hunt paid his poetical tribute; nor are we to forget the acknowledgment due to the fair sex, as represented by Felicia Hemans. Sir Walter Scott was on intimate terms with the Cambrian Lexicographer, Dr. W. O. Pughe, and he has inserted in his notes to several of his poems, extracts from Kymmric documents furnished him by that inquiring savan.

In connection with these words, it is a fact worthy of remark that the School of the Round Table has been one of the principal topics of Alfred Tennyson's poems, for the past forty years.

In this brief treatise the reader will perceive that we have been able to present only a partial view of an extensive subject, and that there are wide and interesting fields within its compass, worthy of more extended investigation.

# THE CHEMICAL ACTION OF PLANTS.

THE oldest manual of chemistry, "*Institutiones Chemicæ*," published 1762, says: "The science of chemistry, in the last twenty or thirty years, has undergone very great transformation." This assertion, true more than a hundred years ago, when chemical investigations could be made only by a very limited number of learned men, is truer still to-day. We may fairly assert that no science has ever undergone larger and more rapid advances and transformations. The change of systems, general theories, and methods of investigation have been continual. But the most important transformation of the last twenty or thirty years, is surely to be found in the fact that chemical science has now become the common property of the cultivated classes, offering a field accessible to the widest circles of society. The most celebrated inventors and investigators, Justus von Liebig among the first, have not disdained to disclose the treasures of their knowledge to the public in general. It will suffice to mention Liebig's celebrated "Chemical Letters," published in the "*Augsburger Allgemeine Zeitung*," a daily and political newspaper which was at that time, as it is now, one of the most influential periodicals published in the German tongue, known and read among German people throughout the world. No scientific publication ever had a success comparable to that attained by these "Chemical Letters;" and even now, as examples of popular presentations of scientific topics, they stand unrivaled. From that time, the learned professors began to give up their ancient system of announcing and describing new investigations in a sort of lapidary style, and ceased to think themselves humiliated when the public took an intelligent interest in their publications, and proved its ability to share in their investigations.

Now-a-days we find instructive dissertations on substances of special interest—on water, air, phosphorus, sulphur—in every paper or review of high standing, and a daily increasing number of learned men are bent upon "popularizing" chemistry, just as physiology, physics, philosophy, and other sciences have, with more or less success

been popularized and made familiar. To be sure, this new method has met with many opponents, and it may be fairly admitted that the so-called popularization, has often been no better than a superficial vulgarization, of scientific topics; yet it can not be doubted that, in spite of some isolated failures, it has on the whole proved its general utility, and that popular discussion has diffused a vast amount of useful knowledge among people who were formerly ignorant of the simplest fundamental principles of science.

Thus we may fairly assume that, chiefly through Liebig's excellent publications, the fundamental laws by which the life and nutrition of plants is regulated, are no longer unknown to the majority of intelligent people. We all know that by the analysis of any plant, or part of it, we invariably find it to be chiefly composed of three or four elements: carbon, hydrogen, oxygen, and nitrogen. We know that the plants draw these necessary ingredients, not from the soil, but from air and water, and that the former supplies to them only the comparatively small amount of mineral ingredients which they require for their perfect development. Thus, we may say that air and water are the sources and foundations of vegetable life.

But we ought not to forget that to acquire this knowledge was by no means easy, and that many thousands of experiments, and the labors of two or three generations, were consumed in the process. In fact, if we investigate closely, we soon perceive that the correct theory of vegetable life, as it is now universally acknowledged, was by no means obvious, or easy to discover. For instance, when we inquire into the assimilation of carbon, by plants, we find that an immense quantity of it, is contained in almost every natural soil. Falling leaves, rotten wood, or other vegetable matter decomposed in the soil, supply to plants immeasurable amounts of carbon; humus, and tufa, are almost entirely composed of it. We can scarcely find fault with our fathers and forefathers, whose knowledge of the condition, and of the elements, of our atmosphere was a very imperfect one, for the simple assumption that plants take their necessary supply of carbon out of the soil, its natural basis, where large quantities of it are accumulated. It was anything but obvious or natural to suppose, and to learn by experiment, that the plants avoid the carbon mingled with the soil, and extract it slowly and laboriously out of the carbonic acid which is contained, in small doses, in the atmosphere.

A mediæval naturalist says: "These wonderful beings—the plants—are our best friends, and nature has made them to be the

source of the welfare, and the misery, of human-kind. What would the world be without their leaves, blossoms, and fruits? An immense hospital, the home of thousand-fold suffering! And yet, how little does ungrateful mankind care for them!" This enthusiastic friend of the plants evidently praises them for their manifold medical virtues; but heartily as we may join in his praise, we have learned to perceive a far greater influence of vegetable life upon "the welfare or the misery of mankind." We know that the plants, which decompose the carbonic acid contained in the atmosphere, and supply it with oxygen, literally make it fit for the development and maintenance of human and animal life. To denominate them, therefore, "truest friends of human kind" inadequately expresses their true importance; we may call them more properly our *indispensable* friends, without whose aid our existence would be an impossibility.

No less singular than the absorption of carbon, is the reception into the vegetable body, of nitrogen. The atmospheric air contains about 78 per cent. of nitrogen. What could seem more natural than that the plants would utilize it for their nourishment? And yet, strange to say, they are incapable of assimilating the aerial nitrogen; this element, indispensable as it is to vegetable life, can not be made use of otherwise than in new and complicated chemical combinations. If to judge nature, and her laws, in accordance with our narrow and limited perception were not altogether inadmissible, one might indeed be tempted to define these strange peculiarities, as willful caprices.

We find in the atmospheric air, besides nitrogen and oxygen, two chemical combinations of nitrogen; namely, ammonia (nitrogen combined with hydrogen), and nitric acid (nitrogen combined with oxygen). Ammonia, an aeriform product of the decomposition of animal or vegetable matter, is everywhere found, in small quantities, in the atmosphere; and, by transmission from the latter, in every soil, and in water, from whence the plants absorb the quantities requisite for their development.

We know that their green leaves, aided by the sunlight, decompose the carbonic acid contained in the atmosphere. The recent researches, however, which were begun by Justus von Liebig, have rendered it more than probable that the same leaves forward another interesting chemical process—the conjunction between oxygen and nitrogen. Liebig was likewise the first to discover and prove the presence of nitric acid, and of ammonia, in the air and the water. From the fact that the contact of atmospheric air, hydrogen, and the electric spark, produces nitric acid, he inferred that the same pro-

cess, repeated on a large scale by the effect of lightning upon the wet atmosphere—*i. e.*, by every thunderstorm—must produce the same result; and the analysis of rain water showed that it really contained a certain amount of nitric acid. The quantity of nitric acid was found to be greater when the experiment was made in the day-time, than when made in the night; and a particularly large percentage of the acid was obtained from water which had dripped in full sunshine from the green leaves of a tree. As we all know, a rain-fall happening during strong sunshine, is considered to be injurious to vegetation, and especially to the development of the green leaves, which often have a stained, and seemingly burned, appearance afterward. We also know that experienced gardeners, although they can give no theoretical reason for it, discourage the watering of flower-beds during the sunshine. It must be inferred from these facts that the falling raindrops, when shone upon directly by the rays of the sun, exercise a pernicious influence upon vegetation; and we may suppose, although there is as yet no positive proof of it, that the cause of this, is the formation of nitric acid in the water. It would be interesting to see in this case, as in many others, a mere empirical observation confirmed by the development of scientific knowledge.

Thus we discover manifold chemical reactions in every manifestation of vegetable life. The plants decompose or generate nitric acid, carbonic acid, ammonia, etc., and are incessantly engaged in chemical operations, of which doubtless, only the smaller portion has yet been revealed as the results of human research. Moreover, every part of the plant, the roots as well as the leaves, co-operate in this work. The absorption of the mineral ingredients of the soil through the latter, is by no means a mere mechanical process. On the contrary, we know, through Liebig's researches, that every root secretes a fluid, whose nature has not been entirely revealed, but which has been distinctly recognized as a sort of acid, by which the absorption of minerals from the soil is greatly facilitated. The above-named naturalist very strikingly says: "the plants *attack* the soil with their roots." If we place polished plates of glass, rock-crystal, quartz or flint-stone, in the earth beneath the roots of a growing plant, we perceive, after awhile, a marked dullness of the spots touched, from which we are led to conclude that these minerals, which resist the action of most known acids, have been corroded by the fluid secreted in the roots. The same effect, but to a much more marked degree, is produced upon weaker materials, such as lime or chalkstone, which are often found deeply scratched and incised by the chemical action of

plant roots. The beginning of vegetation produces a sort of fermentation in the soil, by which carbonic and nitric acid, ammonia, and other necessary elements of vegetable life, are brought forth and diffused through it, in such a way that the roots may daily draw from it, their requisite portion of nourishment. Above and underneath the earth, we find every plant engaged in slow, but incessant and powerful, chemical action.

Plants are also invaluable aids to mankind, in the accomplishment of many purposes, which human skill, and scientific industry, do not, and perhaps never will, enable us to obtain otherwise. In them, nature has provided for us an immense laboratory, in which the finest and most subtle, as well as the coarsest and commonest, chemical substances, are distilled and heaped up for our advantage and profit. For instance, all of us know that potassa is one of the commonest, but at the same time, one of the most important of chemical substances; and that entire branches of modern industry, are wholly based upon the use of this modest product of our chemical factories. Its natural sources are to be found in the feld-spar or rock-quartz, porphyry, basalt, and other minerals, of which, as we know, the bulk of our planet is formed, and which have been gradually changed, on its surface, into productive soil by the combined action of air and water. The feld-spar in particular, contains from six to fifteen per cent. of pure potassa. Nevertheless, it has been impossible, until now, to extract the potassa otherwise than by a long series of difficult and costly manipulations; the potassa being always closely combined with argillaceous (clay-like) and silicious (flint, or quartz-like) earth, from which it is extremely difficult and tedious to separate it. If we had no other means for accomplishing this work, than our own skill and ingenuity, potassa, useful and indispensable as it is, would still be an extremely rare and precious substance. We can not wonder, under the circumstances, that for a long time its mineral nature, and extraction, remained altogether a mystery; and that it was reserved for the so-called organic chemist, to make this important discovery. It was only by the subsequent analysis of a great quantity of different plants, that the presence of potassa, in every variety of the soil, was proved; and the common error, according to which potassa had been considered as the mere product of vegetable life, and therefore denominated vegetable alkali, refuted. The roots of plants have the power of extracting the alkali from the nearly insoluble combinations with clay and silica, in which we find it diffused over the surface of the earth. They perform an operation

which our laboratories and chemical manufactories are as yet wholly unable to perform on a larger scale, and offer us the ready product, potassa, in the ashes of certain well-known and extremely common trees, shrubs and vegetables.

Thus we let the plants work for us, let them store up the alkali in their bodies by gradual infiltration from the mineral soil, and have then merely to lixiviate (leach) their ashes. The numerous efforts which have been thus far made to change this state of things, and to extract potassa directly from the soil, have utterly failed; the skill of mankind can not, in this respect, supersede the work of nature.

Ordinary firewood—pine, beech, etc.,—contains about two parts per thousand of potassa; still richer in this substance is the ordinary beet-root. It has been stated that one of the larger German sugar-manufactories sends to market about 6000 quintals of potassa per annum, thus securing a considerable secondary profit. It is a subject worthy of serious consideration whether such enormous quantities of alkali ought not to return to the soil, in the shape of artificial manure, in order to prevent its gradual exhaustion, especially since the beet-root, as we know, exhausts its chief nourishing ingredients in the course of a few years. As yet we are utterly ignorant as to under what form the potassa is contained in the living plant or its innumerable vesicles; we only know that it must be combined with organic materials which transform themselves into carbonic acid when the plants are reduced to ashes, because we find the vegetable alkali generally in the form of carbonate of potassa, which is identical with the substance commonly called potash.

The fabrication of soda is likewise extensively carried on by the plants; those which grow near to, or in, the sea, withdraw soda from the salt-water and deliver it to us in the shape of carbonate of soda, or soda-ash. However, the quantity of soda gained by the calcination of sea-weed, is infinitely small when compared to the enormous yearly consumption of this material. Human skill and industry have achieved here what they failed to do in the production of potassa: soda is more easily and cheaply produced by the chemical transformation of common salt, than by the incineration, or reducing to ashes, of saliferous plants.

In other cases, vegetation not only assists mankind in the production of useful and necessary substances, but we must confess ourselves to be directly indebted to it for the discovery of some of them. Up to the present day, we probably would have had no

knowledge whatever of those useful twins, iodine and bromine, if nature herself, by means of vegetation, had not placed them in our way, and within our reach. The source from which we derive the requisite amount of iodine, is the ordinary salt-water of the ocean. Nevertheless it is contained in the latter in such infinitesimally small quantities, that four millions of pounds (according to other calculations only one million) of it, when evaporated, would only leave a residuum of about three-quarters of a pound of iodine. In either case the dilution is carried to such a point, that our means of perception and investigation would never have sufficed to secure any considerable amount of iodine from the ocean waters; only the slow and unpretending, but sure and powerful, action of nature herself could help us to make this important discovery, upon which, as we all know, the existence of the photographic art is almost exclusively based. Iodine and bromine are as necessary for the existence of sea-plants, as phosphorus and sulphur for the plants of *terra firma;* they search for it in the waters of the ocean with avidity, and transform it into a solid ingredient of their body; their affinity for these two substances being a very strong and close one. In remote times the ashes of certain sea-weeds, already known under the name of varec,[1] were utilized for the production of soda. The ashes used to be leached with water, the soda being gained from the lye by the process of crystallization. The residuum, which produced no more crystals of soda, was thrown away, as it was thought to be of no value. But it is just this residuum in which we find the iodine; if we add to it a few drops of sulphuric acid, it is liberated as a violet-blue vapor. Thus we see that these humble sea-weeds take upon themselves nearly all the work of the fabrication of iodine; they spare us the enormous task of distilling the salt-water, and offer it to us, a thousand-fold concentrated, and fit for further manipulation, in their ashes. The same may be said of the bromine which is always found combined with the iodine, and is easily separated from it. It was discovered in the year 1826 in the ashes of sea-weed grown in the Mediterranean.

It would not be difficult to give other examples of chemical reactions, and their influence upon our modern industry. The mysterious process of germination, which changes amylum (starch flour) into sugar, and without which the brewing of beer would be an impossibility; and the transformation of vegetable acid into sugar, which takes place in ripening fruits under the influence of heat and sun-

[1] Incinerated (burned) sea-weed.

shine; need only to be mentioned to convince us that the modest activity of the vegetable world, has been hitherto under-estimated. It gives us, in reality, most powerful aid in the attainment of various results which we could never secure by ourselves, however far the development of our chemical knowledge, and our investigations in the elements of surrounding things, might carry us. It can not be doubted that much is still to be done in this direction; and that the soil which protects from our searching eyes the secrets and mysteries of nature's living laboratory (as such we ought to consider every animal or vegetable organism) is only drawn aside at one small corner. Our knowledge of organic chemistry is, as yet, far inferior—in spite of the innumerable discoveries of the last fifty years, to which Liebig's example has led the way—to our knowledge in the science of organic matter.

If we pass to another order of speculations, we can not doubt that the different taste, smell, and color, which characterize leaves, blossoms, and fruits, in million-fold variation, are due simply to chemical operations, the nature of which, we must confess, are as yet utterly unknown to us. One mineral substance, chromium,[1] is known to us as the source of a nearly inexhaustible number of tints and colors of every description; but its scale, rich as it is, seems to be infinitesimally restrained, when we compare it to the hundreds and thousands of brilliant colors with which even the poorest vegetation covers the surface of the earth!

We must not forget that a color is unreal; it is not a corporeal, palpable substance, but merely a state or condition, which affects our eye in a certain way; it does not exist, but is represented to us by the variable decomposition of the light, as the surface of bodies throws back or reflects only a portion of its rays, and absorbs the rest of them. For instance, we call a body, the surface of which absorbs every other ray of the light, and allows only the blue one to meet our eye, blue. The surest proof of the assertion, that no real or corporeal color exists—that the colors are, as Goethe calls them, "deeds, or children, of the light,"—must be found in the fact that some persons can not perceive colors which others see distinctly; and that the colors entirely depend upon the manner in which the light is thrown upon them. Dyed cloth, and even natural flowers, often show, under artificial light, another color than that shown by day. An intensely yellow flame, such as is produced by the burning of soda salts, makes red substances, such as crimson or cinnabar, appear

[1] Also called Chrome; from χρῶμα, the Greek equivalent for the word color.—[Ed.

colorless; and red solutions, looked at under this light, seem to be as clear and transparent as pure water. Moreover, it is quite certain that the form of a substance greatly influences its color. Almost every color gains by fine pulverization. Thus, a solid piece of cinnabar is not red, as cinnabar powder appears to our eyes, but dark brown; and the color becomes proportionally brighter according to the degree of pulverization. Oxide of mercury, the crystals of which are of a shining red color, becomes orange-yellow during the process of pulverization. On the contrary, dark blue smalt [1] can be changed into a colorless powder by long-continued pulverization and trituration.

But chemical action produces no more remarkable influence upon the color of a given substance, than by the physical changes which it causes. As far as minerals are concerned, we are able to follow the reactions which appear to be the cause of a transformation of the color; we know exactly what takes place when white chloride of silver is blackened by the influence of the sun; we can give a chemical explanation of the change of colorless indigo, into colored indigo. But the chemical transformations in the bodies of living plants, by which the most manifold and brilliant colors are produced, are almost entirely unknown to us. We see a flower pass through the entire scale of red, from the softest pink to the darkest purple-brown; but can give no explanation whatever of the mysterious process. We know, for instance, that the light of the sun greatly influences the color of living plants, and experience has taught us, that in most cases, its total exclusion is equivalent to the absence of every color; in other words, that it produces white leaves and blossoms. However, this rule is by no means without exception, as many roots, the roots of alcanna,[2] for instance, although buried in the soil and completely secluded from the rays of the sun, possess a strong and vivid color. We can explain neither the rule nor the exception; on the contrary, we know that, as far as lifeless matter is concerned, mineral or vegetable colors are weakened, and gradually destroyed, rather than enhanced, by the action of the light. Our ignorance in this respect, restricts our influence upon the coloration of flowers and blossoms, to a very modest and merely empirical one. A mere chance has led to the discovery that the infusion of sulphates of iron into the soil, darkens the hue of certain plants which contain a considerable quantity of

[1] Common glass, tinged deep blue, pulverized, and used as a pigment in certain arts.—[Ed.

[2] Also called Henna, or Hinna. A shrub of the genus *Lawsonia* (*L. Alba*) which yields an orange-colored dye.—[Ed.

tannin; and the gardeners have profited by this discovery for the culture of the hortensia. But these examples are rare; and as yet, we must renounce all claim to the control and influence of the natural course of things in this field. We may be able to change the color of a plant, or flower, by transferring it into another soil, but we are never sure of the result, and can not give any scientific explanation of it.

The fragrance of a flower is likewise produced by chemical action which hitherto has escaped our closest investigations; we see the result; we see that a flower, like the bee which transforms pollen into honey and wax, fabricates volatile oils out of air, water, and light; but the chemical process itself, is a complete mystery to us. We only know that the slowness or rapidity of the evaporation of these oils, is the cause of the stronger or weaker odor of the flower. The mode of their formation is a good example of the unlimited variability and manifold variety of vegetation's chemical powers. Many plants do not limit themselves to the formation of a certain volatile oil in their blossoms or flowers, but produce, at the same time, various kinds of oils in their different parts. The orange tree, for instance, produces volatile oils in the leaves, flowers, and the rind of its fruit. A close investigation convinces us that these differ, not only in their smell and taste, but also in their weight, density, and other physical and chemical qualities; that, in short, they are different and independent substances which can not be mistaken for each other. The same plant must therefore possess three different organisms, by which it generates three entirely different substances out of the same ingredients. What chemical laboratory, be it ever so well furnished, and skillfully managed, can boast of results in any respect so wonderful? And when will the time come when we may surprise, even these mysteries of nature's slow and patient, but mighty working, perceive their results, explain their causes, and,—if possible, by our own appliances,—repeat and renew the wonders of the Creation?

# THE NATURE AND SYNTHETIC PRINCIPLE OF PHILOSOPHY.

A SUPERNATURAL truth is beyond our power of discovery; but once revealed, our first impulse is to reconcile it with reason, and to find a sufficient explanation of it in the nature of things. This is the origin of philosophy.

There are some who would make philosophy altogether the result of curiosity. They represent man as awe-stricken with the beauties and sublimities of nature; and, when his astonishment has cooled, as inquiring into the reason why a thing is one way and not another. All this is of their own imagining. Philosophy results from the limited nature of man's intelligence. He asks, then, why and wherefore, because he comprehends not. He cavils not about the question that he understands in all its bearings. He would be informed upon what he does not know. The truth is, man at all times has found his place in nature, and exercised his faculties with all the ease with which he uses them to-day. His first philosophic act was that in which he recognized his self-consciousness. Then all things stood out before him asking for a solution. Then he found that he understood not himself; nor the universe; nor the Creator with whose presence he felt penetrated. He endeavored to rid himself of his ignorance, and to solve the enigmas; and he is still working at their solution. This is yet the problem of philosophy. It would understand the mutual relations of all things. In their essences it would discover these relations, and thence ascend to their principles. It would understand society, the individual, God. In the individual, it would determine the laws of his thought, the nature of his existence, his relative position in the universe, his origin, his destiny. In society, it would discover the laws of its organization, its rights, the source of its power, its modifications as acted upon by external influences. In God, it would learn His attributes and perfections as revealed in the universe,

His nature, His relations with the cosmos. "It would discover," says De Gerando, "in each phenomenon the cause that produces it, in each law, the end to which it tends." [1] It is, as Cicero defines it, the science of things human and divine, and of their causes.[2]

But it is alleged that philosophy has not shown itself worthy of this high function; that it is a synonym for Babel; that it carries with it no weight; for no two agree upon the same question. The fact that man is so anxious to penetrate the symbol, to rend the veil, of philosophy, shows that beneath the symbol—behind the veil—there is something worth the knowing. The individual may be deceived; but humanity is correct in its instincts; and in all ages, the choice spirits of humanity have devoted themselves to philosophical pursuits. Individual minds may give different solutions of the problem; but that invalidates not its existence. Philosophy is discussed by means of reflex acts. And man is averse to reflection. The natural tendency of his mind is for direct acts of thought. But when he does reflect, his ideas will be tinged by his education. A different train of reasoning satisfies each mind. But when the solution is correct, the results will agree; for truth is one, and as many individuals as there are, so many ways are there for expressing the same idea.[3]

Philosophy is no Babel. It has its principles, and its method as determined by these principles. It is therefore a science; and it is its province to investigate the nature of all sciences. It establishes for each of them a basis. It looks to the precision of terms, the legitimacy of reasoning, the soundness of premises, the value of principles. It educates the mind into the habit of looking beyond appearances, and of determining things by their essences. In its present state there is mingled with it a great deal of speculation as fruitless as it is unnecessary. But this must not be confounded with true philosophy. The one may easily be distinguished from the other; for philosophy is based upon the unerring instincts of humanity, the first principles of pure reason, common sense, and the traditionary truths that belong to all ages and nations.

In seeking this basis, the philosopher must beware of the absolute.

[1] Elle veut découvrir dans chaque phénomène la cause qui le produit, dans chaque loi la fin a laquelle elle tend."—*Histoire Comparée des Systèmes*, t. 2, ch. vi.

[2] Rerum divinarum et humanarum, causarumque quibus eæ res continentur, scientia.—*De Officiis*, lib. ii. 2.

[3] On se persuade mieux, pour l'ordinaire, par les raisons qu'on a trouvées soi-même, que par celles qui sont venues dans l'esprit des autres.—Pascal, *Pensées*, 1re. partie, art. x. 10.

He must consider things as they are. No object is rightly understood when withdrawn from its connections. To isolate is to misapprehend. Man is a creature of education. He commits intellectual suicide when, forgetting the fact, he breaks loose from all traditions, and attempts to set up an absolute philosophy. Only the Absolute Being knows absolute truth. Human reason can be relied on; it is, in its own sphere and acting in its normal condition, infallible; but man has never been obliged to stand alone on the platform it builds. He is supported by tradition and revelation. Christianity has opened to him new fields of thought; and it has not only proposed questions; it has solved problems of which antiquity could have had but the vaguest notion. Religion is no hindrance to philosophical discussion; it is a great assistance. He who heeds not its well-defined marks, finds himself drifting about on a chartless sea of speculation, with no compass of certainty to determine his bearing; no polar star of truth to steer his course by; and death ingulfs him, an intellectual and moral wreck:

> "An infant crying in the night—
> An infant crying for the light,
> And with no language but a cry." [1]

The philosopher must set down theories at their true worth. A theory is only a highly probable hypothesis. It may fully account for all the facts known to-day; but to-morrow may bring with it a discovery that will shatter it to pieces, as being absolutely false. At most, it is only a personal view of certain phenomena. But it is not science, for science is objective. As soon as a philosopher begins to trim facts to make them suit his hypothesis, he finds it an obstacle rather than an aid to the knowing of truth; he then prefers fancy to fact, and builds up his knowledge upon fictitious notions. Ignorance is far preferable to such knowledge, for much has to be unlearned; and divesting one's self of erroneous impressions is a slow process. Indeed, there are few men of thought who can not say that one-half their lives is devoted to the unlearning of what they had acquired during the other half. When a man is aware of his ignorance, he has removed the greatest obstacle in the way of his arriving at the truth. Let him, then, not cling too closely to an hypothesis. It is at best but a temporary scaffolding made use of in building up the structure of knowledge, and ought to be abandoned as soon as it is found to hamper thought.

[1] Tennyson. "In Memoriam."

Philosophic schools are the bane of philosophy. The man abandoned to them does not think; he remembers, repeats; he becomes a routinist. He lacks the first quality of a good philosopher, which is, to love truth for truth's sake; for he loves it only as it tallies with the teachings of his school. He becomes partisan in his views. His eyes are veiled to the real condition of things. His intellectual vision is diseased. In his zeal to defend one opinion at the expense of another, he rushes to an opposite extreme and falls into an error equally great with that he would avoid. Therefore the expression of Pascal's, "to laugh at philosophy is to philosophize truly,"[1] when applied to philosophic schools, loses its exaggeration and becomes one of the characteristics of a true philosopher. Truth is simple, and when presented in its naked reality, the mind embraces it, holds to it, and makes it the fruitful source of a large offspring of new ideas. And when the presentation of a subject lacks this character of simplicity—when it abounds in ingenious thoughts and fine-spun arguments, when it is enveloped in a cloud of words—the recipient may well doubt its claim to veracity; with caution ought he to examine it, and reduce what is in it to the language of common sense. Truth asks not to be propped up by partisan views, by distorted systems, by party abuse. It requires of human intelligence but one thing, viz. to be presented as it is.

Philosophy suffers because system-mongers abuse one another; and thus thought remains undeveloped, the truth untold, and philosophy is dragged from her eminence to degradation. Accusation is not refutation. When passion cries out, reason ceases to speak. True, in developing philosophy men cease not to be human. Therefore it is that the history of philosophy contains so much that is unphilosophic mixed up with so many partial truths.

Philosophy appeals to the reason; not to the taste, the memory, or educational prejudices. Let the reason think, examine, discuss, conclude. It is competent to apprehend truth with certainty; for all men perceive by the same light. That light they have not of themselves. It comes from Him who raineth blessings on the good and the bad. It is the *Word, which enlighteneth every man that cometh into this World.*[2]

Conclusions and convictions are not altogether based upon a syllogism, which, as Bacon remarks, "gives assents, not things." More subtle influences are at work drawing for us our conclusions. Likings

[1] Se moquer de la philosophie c'est vraiment philosopher.—*Pensées*, 1re. partie, art. x. 36.
[2] John i. 9.

and dislikings, prejudices of education and degrees of delicacy of organization, are all effectual in converging their forces upon a thought and determining its direction and character. Its roots seem entwined in every fold of the brain—every fiber of the heart, and every nerve of the body. "There is," says Balmes, "not only the intercourse of mind with mind, but of heart with heart; besides the reciprocal influence of ideas, there is also that of sentiments."[1] It behooves the philosopher to be cautious in reasoning and to take into account all these determining elements of thought.

But reason is not alone in the exercise of its functions. All the other faculties of the soul accompany it, and while some help, others impede the progress of thought. Men strongly imaginative are easily led into error; for their language abounds in figurative expressions, and it not unfrequently happens that the figure is an inadequate representation of the thought. In the heat of reasoning they forget this fact; they become involved in their subject, mistake the figure for the idea, and in the end find themselves landed upon conclusions that their premises never warranted. In philosophy the meaning and import of terms must be thoroughly understood. It is only the consummate philosopher that knows how to define well. For that, rare acuteness of mind and complete mastery of language are required. Many—perhaps all—the erroneous systems in the world might be traced to bad defining. Spinoza builds up a colossal system of pantheism on the misapprehension of a term. But were the good and pious Monseigneur Bouvier consistent with the fundamental ideas he lays down in his little work on philosophy—as when he includes being in the idea of genus[2]—he would have been an equally great pantheist. And so it is with the majority of good and well-meaning writers of philosophical treatises. Their faith is one thing; their philosophy another; and both their faith and philosophy are in their first principles or last results either contrary or contradictory. This antagonism between forms of faith and philosophic systems has led men to recoil from all philosophy, and live either in the despair of scepticism, or in the ardent exercise of mysticism.

The history of philosophy may be divided into three periods: first, the period of religious revelation; second, that of natural philosophy, and third, that of ideistic rationalism. All three periods are good, and become an evil only when one or the other attempts to

[1] No hay tan solo la communicacion de entendimiento con entendimiento, sino de corazon con corazon; á mas de la influencia reciproca de las ideas, hay tambien de los sentimientos.—*El Criterio*, p. 239.

[2] Ens, universalissimum genus.—*Institutiones Philosophicæ*, p. 8.

monopolize the whole of philosophy. It is well that we know ourselves—the faculties of our soul, the desires of our heart, even the organism of our brain; well also is it that we reason according to secondary causes and consider the nature of things; and it is equally well that we reconcile reason with revelation.

1. There is the period of religious revelation. This begins with the primitive man. But as his descendants departed from the original source, they retained only broken fragments of the first tradition in which the race was educated. All the great truths relating to man's origin and destiny were then present to him, and if he asked "Who is the God to whom we shall offer our sacrifices?"[1] —it was only to assert more positively the eternal existence of the great Divinity. "It is very remarkable," says Kant, "though naturally it could not have been otherwise, that in the infancy of philosophy, the study of the nature of God, and the hope as well as the constitution of a future world, formed the commencement rather than the conclusion, as we should have it, of the speculative efforts of the human mind."[2] Not alone in the Mosaic account is revelation to be found. It runs in silent and feeble rills through the traditions of all nations; it forms the undercurrent of their sacred books; and tinged though it be with individual feelings, and adulterated by the fictions of national fancy, it is still in its essence the same divine knowledge that was revealed to Adam and preserved by Noah. In this period, men knew not what it was to doubt. To live and to believe were for them one and the same act. All the great religious and philosophic truths—the greatness and goodness of God, the spiritual nature of the soul, its immortality, a future life—were as intimately present to these men as their own existence. Their humanity still seemed to vibrate under the touch of the creative fiat with which it had lately been launched into existence. And as with the advance of the ages, they felt the growth of human corruption, the one great problem with them was how to stay their downward course, and propitiate the divinity. Hence their sacrifices. Hence that lingering regret with which they looked back to the golden period that had passed from them forever. That man's first conception of the Divinity was that of "an awful Power, terrible in its might, vague in outline, and mysterious in its nature,"[3]

[1] "Rig-Veda,", x. 121.

[2] Es ist merkwürdig genug, ob es gleich natürlicherweise nicht anders zugehen konnte, dass die Menschen im Kindesalter der Philosophie davon anfingen, wo wir jetzt lieber endigen möchten, nämlich, zuerst die Erkenntniss Gottes und die Hoffnung oder wohl gar die Beschaffenheit einer andern Welt zu studiren.—*Kritik der reinen Vernunft, Werke*, iii., 561.

[3] S. B. Gould, "Origin and Development of Religious Belief," p. 231.

is a mistaken notion opposed by the primitive writings of all nations. In *Genesis* we read that after God had created all forms of life, he "blessed them"—which is not the action of an angry God, "an awful power, terrible in its might." So too in the Rig-Veda it is written, "Varuna is merciful even to him who has sinned." To conceive man acquiring the idea of God through fear is based upon the mistaken notion that the primitive condition of man was that of a savage, and that he is but a development of some of the lower forms of life—a notion warranted neither by the history and traditions of nations, by the nature of things, nor by true science.[1] The great primitive truths, preserved in the traditions of all nations, have a common source. "So then," says Clement of Alexandria, "the barbarian and Greek philosophy has torn off a fragment of eternal truth, not from the mythology of Dionysius, but from the theology of the ever-living Word."[2]

2. There is the period of natural philosophy. As the stream of tradition grew more adulterated with human thought, and the ages became more secularized, the religious sentiment, becoming weaker, entered philosophy less as an element than formerly. Progress in the material arts gave rise to the observation of physical phenomena, and men sought rather to consider secondary causes than the great first and final Cause. Thales makes water the principle of all things. Anaximenes endeavors to account for the basis of matter by considering the gaseous solid and liquid states as so many conditions of air. Heraclitus makes fire the principle of existence. But it is already found necessary to prove the existence and immortality of the soul. This Pherecides attempts.[3] The philosophy based on physics necessarily gravitates to materialism. And such was the case with the Ionic school until Anaxagoras asserted the duality of matter and spirit. But whether the philosophers of this period assert or deny the Divinity, they seek causes in the nature of things and independent of Him; while those believing in Him make Him external to the universe—a master-artist with Plato, or with Anaxagoras, a νους outside of His creation.

And as in Greece so it is with other countries. In India, after the Mimansa of Vyasa with its interpretations of the Vedas according to tradition, we find the Sankhya of Kapila with its twofold princi-

[1] Vide "Genesis of the Species," by Mivart, ch. ix. x. xi. xii.

[2] *οὕτως οὖν ἥ τε βάρβαρος, ἥ τε Ἑλληνικὴ φιλοσόφια, τὴν ἀιδιον ἀλήθειαν σπαράγμον τινα, οὐ τῆς Διονίσου μυθολογιας, τῆς δε τοῦ Λόγου τοῦ ὄντος ἀεὶ θεολογίας πεποιήται.*—*Stromaton*, lib. i. cap. xiii.

[3] Pherecides syrius primum dixit animos hominum esse sempiternos.—Cicero, *Tusc.* lib. i.

ple of things—matter and intelligence—and its various branches, some material, some spiritual, some mystical, as one or other principle was exclusively considered. But among the twenty-five principles of things laid down in the Sankhya philosophy, we look in vain for a divinity. Things are there considered to stand on their own basis.

3. There is the principle of ideistic rationalism. When God was left outside as an element, He soon became ignored. Philosophy ceased to be a science of principles in their relations with things, ceased to be a serious accounting for the cosmos, its origin and destiny, or of man, his position and relations, and narrowed down with the ancients to a system of knowing. Planted in their speculations upon their own existence these men ceased to be certain of their own explanations. They became sceptics. They assert with Protagoras the relativity of all truth. With the Nyaya system of India, they build up dialectics, and reduce all philosophy to the problem of knowing.

These three periods have had their cycles. With the introduction of Christianity we find the first period again revive. Christian philosophers sought to reconcile the pagan cosmogony and science with Christian teachings. Hence the efforts of Jerome, Basil, Clement of Alexandria, Augustine. Then came the Scholastic period, when all science and religion were built up on the natural basis of the Aristotelian philosophy. Finally, we are still struggling through the Cartesian period, with its one problem of knowing. The fruits of this last period are already making their appearance. The scepticism of Hume is redolent of it; so is the atheism of Mill; so is the materialism of Bain; and the evolutionism of Spencer, which merges this problem of knowing into the unknowable, is racy of the soil. Philosophic principles that lead the mind to these results, must have somewhere a flaw. It were of advantage to examine those of the leading systems of this latter period.

Descartes began by secularizing philosophy. He then reduced it to a method; after which he sought a principle that would be its basis. He undertook to doubt of many things which he believed with certainty. This was a grave error. There was already contradiction in his mind; for how doubt and be certain of the same thing at the same time? But let us hear him determine the fundamental principle of his philosophy. "I afterward noticed that while I wished to think every thing false, it became necessary for me, who so thought, to be something, and remarking that this truth: *I think and I therefore exist*, was so firmly established that the most extravagant suppo-

sitions of the sceptics could not shake it, I judged that I could without scruple accept it as the first principle of the philosophy I sought."[1] Now, this principle, while it is a necessary condition of all knowing, establishes the identity of him who thinks—and nothing more. "The *I think*," Kant properly remarks, "must accompany all my speculations."[2] But, admitting nothing else than one's identity, it is impossible to rise beyond it. And as Descartes began in illusion, it was only by illusion that he got further. But a philosophy, illusory in its beginning and illusory in its process, must needs be illusory in its results. It then becomes a romance. But life is too short, and too much hangs upon it, to spend its most effectual part in unraveling the threads of a romance. Not in Descartes is the principle of philosophy.

Locke also reduced all philosophy to the operations of the understanding. His fundamental principle he bases upon the origin of ideas. "These two, I say, viz., external material things, as the objects of *sensation*, and the operations of our own minds within, as the objects of *reflection*, are to me the only originals from whence all our ideas take their beginnings."[3] The whole of philosophy is with him only a question of knowing. Hence throughout his book, he speaks not of time and space, of substance and accident, of finiteness and infinity; but of their ideas. Upon such a basis, it were natural to ask, how know we that there are external objects corresponding to the ideas we possess? And this question brings us to the ideism of Berkeley. And if we are not certain of the reality of external nature, what grounds have we for believing in the reality of our ideas—our soul? Then, we are simply subjects of impressions. This reasoning lands us at the scepticism of Hume. Again, since reflection is based upon sensation, and gives nothing that is not found in sensation, for all reflex acts assert the primitive act, and neither more nor less, why is not sensation the sole origin of all our knowledge? Here is the sensism of Condillac. "By their fruits you shall know them." The principle logically running into such extremes can not be the true principle of philosophy. "After all," says Reid, "the improvements made by Malebranche, Locke, Berkeley, and Hume, may still be called *the Cartesian system.*"[4] It is still the one problem of knowing. How is it with Reid himself?

[1] Œuvres, tome i. "Discours de la Méthode." Ed. Cousin, p. 158.
[2] "Kritik der reinen Vernunft," sect. ii. § 12.
[3] "Essay Concerning Human Understanding," book ii. ch. i. § 4.
[4] Works, vol. i. p. 430.

Reid is in the same sense a Cartesian. While refuting Locke—often in a masterly manner—he himself runs in a parallel groove. He has but a philosophy of the human mind and its intellectual powers. It is still a philosophy of knowing. Its principle is one of knowing. It is the principle of common sense. Of the judgments that make up this principle he says: "Such original and natural judgments are therefore a part of that furniture which nature hath given to the human understanding. They are the inspiration of the Almighty, no less than our notions of simple apprehension. They serve to direct us in the common affairs of life, when our reasoning faculties would leave us in the dark. They are a part of our constitution, and all the discoveries of our reason are grounded upon them. They make up what is called *the common sense of mankind;* and what is manifestly contrary to any of these first principles is what we call *absurd.*[1] This principle has been recognized by Fénelon and Buffier. But it is simply a motive of certitude, and can not therefore be called a principle of philosophy, with its basis in the nature of things.

Kant undertook to revolutionize philosophy. His system is that of judgment and reason, pure and practical. It is still the philosophy of knowing. Now he thus sums up this philosophy, and its use: "The greatest, and perhaps the only advantage of all philosophy of pure reason is but of a negative character, inasmuch as it is not an organon for the extension, but a discipline for the determination of limits; and instead of discovering truth, it simply guards against error.'[2] It is well that we possess safeguards against error and that we know the limits of thought; but the whole of philosophy cannot consist in this knowledge. Moreover, while, in points of detail, Kant is often admirable in his reflections, it must be confessed that his "Critique of Pure Reason" is the destruction of all reason; for when it attempts to show that the reasons for truth and error are equally convincing, and that on the most vital questions, it breaks down the foundation of all certainty, and, closed round by the impregnable barriers of self, it is unable to pass beyond sensible phenomena.

But if Kant destroyed certainty, Balmes vindicated its existence and laid down its principles in a masterly manner. With an ardent love for truth and a burning zeal to defend it; with a brilliant and and well-trained philosophic genius, this man attacked all the great

[1] Works, vol. i. p. 440.

[2] Der grösste und vielleicht einzige Nutzen aller Philosophie der reinen Vernunft ist also wohl nur negativ; da sie nämlich nicht, als Organon, zur Erweiterung, sondern als Disciplin, zur Grenzbestimmung dient und anstatt Wahrheit zu entdecken, nur das stille Verdienst hat, Irrthümer zu verhüten.—*Kritik der reinen Vernunft, Werke*, b. iii. s. 526.

problems of philosophy, and he spoke upon no subject that he did not say something worth remembering. Surely with Balmes we ought to find the basis of true philosophy. But, whether he wished to fight the errors of the age on their own grounds, or whether unconsciously he was influenced by the philosophic atmosphere of his day, the fact is that he, too, bases all philosophy upon the problem of knowing: "The study of philosophy," he says, "ought to begin with the examination of the question of certainty; before raising the edifice the foundation must be laid."[1] Balmes has done much for philosophy. He has overthrown many of its idols; he has thoroughly explored some of the most interesting problems of intelligence; he has cleared the ground of the weeds and briars of errors. He knew much philosophic truth; but he evidently missed the principle of philosophy. He admits that all truths have a unity of origin, and that there is "in the order of beings" a truth the source of all others. That truth he calls God.[2] But a few pages after he truly asserts that from the idea of God no man can infer either the reality or possibility of creation.[3] Were the truths of the finite order to flow from God, as a necessary consequence pantheism were good philosophy. To assert God, is to assert that God is, or God is Being—which is that He is Himself—and as He is infinite and necessary, He is self-sufficient—and nothing is necessary for Himself but His own essence. Such an ideal formula gives but God. It is a reactionary extreme against the other error of Cartesianism, which asserts only man's self.

Gioberti, feeling the force of such reasoning, undertook to establish an ideal formula that would include the proper relations of the finite with the infinite. He begins by asserting that "to-day in Europe there is no longer any philosophy,"[4] and that "true philosophy no longer lives anywhere outside of religion."[5] He consequently goes to religion for the principle of philosophy. That principle he rightly conceives to express the true relations of the finite with the infinite. He finds that relation admirably expressed in the opening words of the Sacred Scriptures: "In the beginning God created heaven and earth."[6] He considers the source of philosophical errors to lie in the

[1] El estudio de la filosofía debe comenzar por el exámen de las cuestiones sobre la certeza; antes de levantar el edificio es necesario pensar en el cimiento.—*Filosofía Fundamental*, cap. i. 1.

[2] *Ib.* cap. iv. 40.

[3] Cap. vi. sec. 67.

[4] Nel primo comincio collo stabilire, che al di d'oggi in Europa non vi ha piu filosofia.—*Introduzione allo Studio della Filosofia*, i. p. 4.

[5] La filosofia è morta, o per dir meglio, la vera filosofia non vive più altrove, che nella religione.—*Ibid.* vol. ii. chap. 3, p. 147.

[6] Gen. i. 1.

misapprehension of the creative act. He therefore establishes as the philosophical principle the ideal formula: *Being creates existences.*[1] It is a sublime philosophical truth; and it were the adequate embodiment of the whole truth were there no other than the natural order; but there is also the supernatural, of which it is the province of philosophy to take cognizance—otherwise it would be supposing man to be what he is not. The formula of Gioberti is adequate for the creation prior to the appearance of man upon the arena of existence. But since he is destined to a supernatural end, and lives and moves in the atmosphere of grace,—the philosophical formula that will embody the real relations of things must contain another term expressive of the supernatural. Gioberti felt the weakness of his position on this point, and therefore for the apprehension of the supernatural, gave man a distinct faculty, which he called *sovrintelligenza.* Schlegel imagines a similar faculty—which he calls "the sense for divine things."[2] Gioberti identifies it in substance with the *noumenon* of Kant, so far as regards the subjective nature of its principle and the impenetrable reality of its object.[3] He explains its necessity by telling us that the superintelligible being, an object intrinsically different from other objects of knowing, ought to be referred to a special faculty, which differs from the other powers, not only by the nature of its aim, but also by the special manner in which it takes and possesses it.[4] This establishes the faculty of *sovrintelligenza* as a natural one. Now, if man has a faculty especially adapted to know any truth, it is natural for him to know it; it is within the sphere of his intelligence to know it; and the principles of his nature are sufficient for its knowing. But the superintelligible is the knowledge of the super-

[1] La vera formola ideale, suprema base di tutto lo scibile, della quale andavamo in traccia, può dunque essere enunciata nei seguenti termini; *l'Ente crea le esistenze.* In questa proposizione l'Idea e espressa dalla nozione di Ente creante, la quale inchiude i concetti di esistenza e di creazione; onde tali due concetti appartengono indirettamente all' Idea, e agli elementi integrali della formola, che l'esprime. L'idea dell' Ente è il principio e il centro organico della formola; quella di creazione ne è la condizione organica: i tre concetti riuniti insieme formano l'orgànismo ideale. Senza l'idea di creazione, verrebbe meno il nesso fra gli altri due concetti, e gli estremi della formola insieme si confonderebbero, come avvenne presso i popoli e i filosofi Gentili, che smarrita quella nozione relevantissima, perturbarono più o meno tutto l'ordine delle verita razionali.—*Introduzione allo studio della Filosofia*, vol. ii. chap. iv. p. 201.

[2] "Philosophy of History," Bohn's Ed. p. 212.

[3] Il sovrintelligibile, rispetto alla natura subjectiva del suo principio, e all' impenetrabile realta del suo oggetto, è veramente il *numeno* di Emanuele Kant, e la base della sola filosofia transcendentale, che torni possibile allo spirito umano.—*Introduzione*, vol. iv. cap. viii. p. 18.

[4] Ora il sovrintelligibile, essendo un oggetto intrinsecamente disforme dagli altri, dee riferirse a una facoltà speciale; la quale differisce dalle altre potenze, non solo per la natura del suo termine, ma eziandio pel modo particolare, in cui lo coglie e possiede.—*Ibid.* p. 7.

natural. The latter "expresses," says Gioberti, "in the order of facts what by the other is signified in the order of ideas."[1] But man can not attain to the knowledge of the supernatural by himself. The light of faith strengthens all his natural faculties to apprehend the mysterious truths it presents for their acceptance. No special faculty is given; but those already possessed are enabled by a supernatural means to know the supernatural. Grace supposes nature. And it were confounding the one with the other to make grace an essential part of man's nature. Had God so wished, man were complete without the supernatural order, because being finite, a finite happiness would have sufficed him. But being raised to the plane of the supernatural, a capacity for the enjoyment of the infinite has been given him. And it is this capacity that Gioberti misapprehends as a distinct faculty, for he defines it to be the sentiment of intellective power inexplicable in the course of time, and before the event of the second creative cycle,[2] or the passing into the other life. And the note of the super-intelligible consists in our inaptitude to comprehend it.[3] We know this feeling—this yearning, not of one faculty, but of our whole nature, after a good, superior to any that finiteness can offer. It is the note of our predestination to the supernatural. Let us recognize it for what it is. The age is but too prone to ignore it altogether. The supernatural is; in its vivifying rays we live, move, and are. Gioberti's principle was a step in the right direction; the great fault to be found with it is its inadequacy. And now, let us endeavor to find a principle embodied in a formula that will include both the natural and supernatural orders.

Truth is actuality. All generalization is based thereon. The generalizations of reasoning, therefore, have their foundation in actuality. But the primary element of all reasoning is the proposition. Its right use and application is explained in logic. Logic, then, is based upon actuality. Its origin and life it receives from the divine Λογος—the *Word*. And as it is the same Word that speaks in the

[1] Il concetto del sovrannaturale è gemello del concetto del sovrintelligibile, ed esprime nell' ordine dei fatti ciò che viene significato dall' altro nell ordine delle idee.—*Introduzione*, vol. iv. p. 29.

[2] La sovrintelligenza non è adunque altro, che il sentimento della virtù intellettiva non esplicabile nel corso del tempo, e innanzi all' esito del secondo ciclo creativo.—*Ibid.* vol. iv. p. 12.

[3] Il contrassegno del sovrintelligibile risiede nella nostra inettitudine a comprenderlo. —*Ibid.* p. 8.

Again, in another place he says: L'idea del sovrintelligibile, come vero, é come bene, rampolla dal sentimento oscuro e profondo, di potér conoscere e godere, non solo più largamente, ma altramente, che non si conosce e non si gode in questa vita.—*Ibid.* p. 14.

Creation, and in the Incarnation—all logic has its foundation in these acts. But synthetic logic is the basis of philosophy. Its fundamental principle stands upon these acts in its expression. The principle sought must therefore express both acts, and can not possibly consist of one predicate; for each act is distinct. Therefore, the first principle of philosophy is:

GOD ACTUALIZES COSMOS BY THE WORD, AND COMPLETES ITS END IN THE WORD.

Here is a formula embodying the natural and supernatural elements of philosophy—that which is of reason as well as that which is of revelation—in their proper order and relation. Let us examine it piecemeal.

*God.*—Without God there is no philosophy, no science, no existence. He is the principle and source of all things. In Him we live, move, and are. And men know it; "because that which is known of God, is manifest in them; for God hath manifested it to them."[1]

*Actualizes Cosmos.*—That which from all eternity was in the divine ideal of His essence as a thing possible, He made actual by His creative act. Every thing outside of this essence—and that is all nature, animate and inanimate, spiritual and material, the Cosmos—He drew from nothing. "I beseech thee, my son," said the mother of the Maccabees, "look upon heaven and earth, and all that is in them: and consider that God made them out of nothing, and mankind also."[3] "For," says St. Paul, "the invisible things of Him, from the creation of the world, are clearly seen, being understood by the things that are made; His eternal power also and divinity."[2]

*By the Word.*—He drew all things from nothingness, by means of His divine Word; for He spoke, and they were made; He commanded, and they were created."[4] This Word is His own Nature, the second Person of His triune Divinity, and the medium of His creative act.

*And completes its end in the Word.*—It has been seen that as an infinitely intelligent Being, God creates for a purpose. That purpose must necessarily be Himself. No other is worthy of Him. But the ratio of the finite to the infinite is infinite, as may be seen from the mathematical formula, in which $f$ represents any finite quantity, and $\infty$ infinity:

$$\frac{f}{0}=\infty;\ f=\infty\times 0;\ 0=\frac{f}{\infty};\ \frac{0}{1}=\frac{f}{\infty};\ \frac{1}{0}=\frac{\infty}{f}=\infty.$$

[1] Romans, i. 19.
[2] Romans, i. 20.
[3] 2 Mach. vii. 28.
[4] Psalms xxxiii. 9.

Therefore, to have a finite effect worthy of an infinite first and final Cause—to have cosmos worthy of its Creator—God raised it above the limited plane on which it stood, and gave it a significancy that rendered it adequate to His Infinitude. As the first act was by the Word, it was proper that the same Word should bring that act to its completion, which was done by the union of the Word with cosmos through man,—"And the Word was made flesh."[1]

Thus, in this principle we have a formula into which God and His creation—its origin and destiny, its alpha and omega—are all condensed. It is the sum of all philosophy.

In the term *God*, we have the subject of Theodicy and Natural Theology.

In the term *Cosmos*, we have the idea that gives us the ideas of space and time, with all their concomitant ideas of number, extension, mathematics, natural history, and physics.

In the term *the Word*, is contained the type of creation—the basis of history—the ideal of literature and art.—"There is but one Word, and that Word all things speak."[2]

In the terms *completes its destiny in the Word*, we have the whole supernatural order—a Church, its means of sanctification.

In the term *actualizes*, we have the idea of pure and supreme cause expressed, and the real relations of the Creator to his creation.

When John the Evangelist, after gazing with love and reverence upon the infinity of God's Being, burst forth into the sublime words that are the opening of his gospel—he not only gave us the relations of the Son to His eternal Father, but in words of divine inspiration he summed up the whole of philosophy. We have only sought to embody his idea in a philosophic terminology. Traces of it are to be found everywhere. They exist in the marred beauties of literature, and in the broken harmonies of the universe. The philosophy that would preserve Christianity must cling to the Word. And it will find itself more enlightened than the atheistic speculations that would reject the one and the other. All science begins and ends in mystery. The atheist shuts out from the horizon of his knowledge the mysterious —while the Christian philosopher takes it into account and endeavors to explain it. In doing so he is more consistent. That would be an inadequate theory of light that would refuse to explain the phenomena of darkness.

[1] St. John, i. 14.

[2] Imitation of Christ, b. i. ch. iii.

# THE OLD AND THE NEW SOUTH.

AT the beginning of the second century of our national existence, attention is naturally directed to those questions, among others, which relate to the present and prospective condition of the Southern States. It will be our endeavor, in this paper, to present, honestly and fairly, the views, upon these questions, of those representative thinkers of the South who are, every day, abandoning the creed of the Confederates as to political, social, and industrial organization; manifestly shaping the convictions of their neighbors, and bringing the sections which they represent, into increasing harmony with the rest of the country. This new era of progress is marked by the rejection of some, and the preservation of other features of the old *régime*, as well as by a new development. To understand the opening career of the New South we must know what of the past is to be abandoned, and what is to be retained. This demands that we shall first understand the nature and character of the Old South, whose distinguishing feature was the institution of negro slavery. Mr. Stephens, then Vice-President of the Southern Confederacy, in an address to a large assembly in Savannah, in March, 1861, said of the new government, "Its foundations are laid, its corner-stone rests, upon the great truth that the negro is not equal to the white man; that slavery—subordination to the superior race—is his natural and normal condition." There is no doubt slavery was the corner-stone of Southern society; and when it was removed four years later, a thorough disintegration of the whole fabric was the logical result.

When our country was first settled, the Southern regions excelled the Northern in soil, climate, and other natural resources; and in respect to minerals, harbors, navigable streams, and water-power, were not inferior. The subsequent advancement of the North has been so rapid as to excite the wonder of the world, while it is said by us of the South, jesting upon our own worn-out and exhausted land, that we have not done as much for the country as the Indians who dwelled here centuries ago, and left the soil as good as they found it.

The plantation system was the great barrier to Southern progress. From its first historical appearance among the Carthaginians, from whom the Romans seem to have derived it, this rude and wholesale method of farming has rested on slaveholding. Its workings have been similar everywhere. In Italy under the Roman republic, absorbing the petty holdings, it drove out the small farmer; it removed the former respect for trades and handicrafts, and brought them into disfavor; it prevented the development of the industrial arts; it created a non-reciprocal commerce. Centuries later, it produced the same results in our Southern States.

A sketch of the leading features and results of the plantation system as it existed in America, is the proper beginning of our review.

The driver, as the negro foreman was called, was not very common in the South, and was generally under the superintendence of the overseer. Could the planters have made a good overseer of the driver, of course they would have consulted their interest and reproduced the ancient slave-steward of Rome. Slaveholders keep their slaves under careful surveillance, but they do not usually overlook them in person. It is not often that a master engages in an employment which brings him into daily and intimate contact with the lowest orders, and which he instinctively feels to be degrading. The planter could have neither his first choice, which would have been a slave overseer, nor his second choice, a superintendent from his own rank in society; and so, as the next best thing, he had as overseer a white hireling from the non-slaveholding class. The tillage of the fields was thus entrusted to the overseers, who were for the most part men of little education and business skill, and who had no interest in their employment except to receive their wages. Thus the foremost, if not the only, Southern industry was managed by incompetent and careless agents.

The Roman master, in the later days of the republic, having always vast markets open to him, shunned the expense of providing for women and children, and bought new males instead of breeding them; but the closing of the African slave-trade, and the softer hearts and manners of modern times, led our planters, at last, to rely on propagation as their only source of supply. The negroes were therefore well cared for, and in a genial clime, increased rapidly. This increase, however, did not keep pace with the increasing demand for Southern products, and so the market value of the slave rose steadily. To the Roman slaveholder, land was almost everything, and his rustic slaves nothing; to the Southerner, the slaves were almost every-

thing and the land nothing. There was no careful cultivation of the soil, no judicious rotation of crops, and no adequate system of fertilization. Southern husbandry was for the most part a reckless pillage of the bounty of nature. The planter became possessed with a roving spirit, and was continually seeking "fresh land," as virgin soil was termed. In the older sections, where there was most stability, the best farming consisted in judiciously eking out the natural fertility of the fields, and when that was exhausted, in leaving them to recuperate by years of rest. Thus a given working-force required, year by year, a greater and greater allowance of land, and the plantations became steadily larger, the small farmer retiring and the white population becoming continually less. Many of these older sections were turned from agricultural communities into nurseries, raising slaves for the younger States where virgin soil was abundant. The fertile lands of the new settlements, by yielding bountiful crops, gave fresh impulse to the plantation system, and here the small holdings were absorbed more rapidly than they had been in the older States. The Southern slaves, regarded in the light of property, offered one of the most desirable opportunities ever afforded to the generality of people for investments. They were patient, tractable, and submissive, and never revolted in combined insurrections as did the slaves of antiquity. Their labor was richly remunerative; their market value was constantly rising; they were everywhere more easily convertible into money than the best securities; and their natural increase was so rapid that a part of it could be squandered by a shiftless owner every year to make both ends meet, and he still be left with enough of accumulation to steadily enrich him. And so the plantation, or rather the slave, system, swallowed up everything else.

There were no distinct industrial classes. There were negro blacksmiths, negro carpenters, negro shoemakers, etc., all over the land, but they were mere appendages to the plantations, and far inferior in capacity and skill to the artisan slaves of antiquity.

The commerce of the South was in reality non-reciprocal. She purchased, but did not sell. Her cotton, sugar, and tobacco simply represented the money paid for the manufactures which should have been her own. The overmastering energy of slave property, dissolving, as it were, all things into itself, kept her from that development of trades, manufactories, and industrial arts, which secured the solid and unprecedented progress, and far more durable wealth, of the North.

There were a few exceptions in the way of restorative agriculture, and of diversified investments of capital in railways, manufactories,

inland navigation, and mercantile enterprises. All along the northern borders there were efforts to dispense with slavery, and free industry was slowly developing in a few places; but these things were as dust in the balances. The slave system was rooted in the best portions of the land, and nearly all of the productive wealth of the South was in, or dependent upon planting. Implacable enemies of slavery were rapidly increasing in numbers and power, but she continued blindly sacrificing all else to the raising of negroes. When actual emancipation came, the South, under that snipping May frost, impoverished by the loss of her one chief source of wealth, presented a picture parallel to that of Ireland when smitten with famine by the sudden failure of her only supply of food. When the charity of the world, and the returning bounty of nature, had again fed the Emerald Isle, affairs resumed a normal condition, and went on as before. But not so with the South: her wealth has fled; her occupation, with the plantation system, is gone, and she must for a generation grope painfully in the darkness attendant upon seeking new methods of subsistence, meanwhile experiencing failure and want, before success and plenty are restored.

The duties of the planter have changed. The management of a farm is not like that of a plantation, and one skilled in the management of slaves is not necessarily efficient in the directing of freedmen. Many other countries have been impoverished by wars, but is not this instantaneous, and almost complete, taking away of a great people's mode of living, unique in history? The most resolute secessionist would have lost heart, and put up his sword, could he have seen, before the war commenced, how easily the solitary prop of Southern wealth and comfort could be overturned, to be set up no more. But in none, even of the ablest of the anti-secession arguments of 1860, were the consequences of defeat predicted.

Some portions of our country have been built up into a high degree of prosperity by a steady influx of foreign settlers. An estimate of how much has been added to the power and wealth of the Northern States, as the result of immigration from the old lands of those who could at first do little more than subsist upon the results of their industry, almost defies computation. The force of the preponderant population of the North, which pressed upon the South during the late war and at last crushed her down, was largely due to the fact that slavery repelled the free immigrant from the South, and sent him to the North, with his power to enrich and defend.

The uniform and rapid advancement of civilization is mainly due

to the struggle of the poor to better their condition. These efforts result in complex division of labor, accumulation of wealth, and, better than these, in the production of a great population engaged in diversified industries. In such a population, improving year by year in business habits, consists the strength of a nation. The slave had no hope of rising, and the system of which he was a part repelled free workingmen; and thus the South lost the benign emulation and energy of a lower class. The ancient slaves were not alone rural laborers and domestic servants, as were those of the South. The former, being of kindred blood with their masters, and near their level in natural capacity, were initiated in the various industries, some of which flourished greatly under their management. Though the slaves of old were very degraded, they were not as low and groveling as those of our day. Enfranchisement was common; and, in a few generations afterwards, the descendants of the freedmen were indistinguishable amid the body of free citizens. The ancient states were not, therefore, prevented by slavery from having advanced and diversified industries, nor were they denied the impulse of a possible rising from the lower to the higher classes. But the American slave was of another race, far below the level of his master in capacity, and the horror of receiving him into the body of free citizens grew continually stronger. The law discouraged manumission, and frowned upon the increase of freedmen. Thus, the African slavery of the South was the most hopeless form of servitude the civilized world has ever seen; and, by preventing the development of a great class of freemen engaged in respectable industry, it killed the very roots of social progress. These influences of slavery, so repugnant to the march of American progress, will be more vividly seen and understood in the answer to the question: What would have been the present condition of the South had it not been for slavery? Undoubtedly her land would have smiled with a fertility richer than the endowment of nature; her industrial arts would, ere this time, have branched out into multifarious activity; her own ships would have been carrying her produce and manufactures abroad; and, better than all these, she would have had a teeming population of workers whose education in the methods of self-support would have been the assurance of unlimited future advancement. In brief, in all the elements of the greatness of a community, the South might now have equaled, if not excelled, the North.

But there are some other effects of slavery to be noted, before the character of the Old South can be clearly and fully understood.

Among the planters, costly and liberal instruction was given to a few of those who were to adorn places of leisured ease, or to fill the necessary professions and public positions; but, in the midst of the sparse and shifting rural population, there could not be that devotion to the education of all, which is one of the most conspicuous glories of the Northern States.

In consequence of the sparseness of the planters, and their roving habits, there was not that subdivision of different portions of the counties into small self-governing wards, which Jefferson so fondly desired. He said of the New England townships, that they had "proved themselves the wisest invention ever devised by the wit of man for the perfect exercise of self-government, and for its preservation." He also said that he considered the continuance of republican government, as absolutely hanging on two hooks, to wit "the public, education, and the subdivision of counties into wards."

This government of every vicinage in its home affairs, as originated in New England, and as spread far and wide throughout the Northern States, is the most beneficent achievement of American democracy. By this coercion of the citizen to participate in the constant administration of public matters directly concerning his interests, self-government becomes, as it should be, the business of all, and all are compulsorily educated in the best of all learning for the race.

The *finale* of slavery remains to be told. As opposition to it increased from without, the South became more and more closely united. She honestly believed that wanton intermeddlers were attacking her dearest rights. The steady and continually strengthening warfare against slavery, and her continuous and earnest defense of it, began—it is impossible to determine precisely when—to knit her into a nationality of her own. He who understands what Mr. Bagehot calls "nation-making," will discover in the past history of the South, if he looks attentively, many signs of this tendency which steadily progressed, unperceived on her part, and still more so on the part of the North, until the South began to coalesce into a nation as compact as her scattered and random elements would permit. The long advocacy and support of slavery in the political arena, had fevered her whole people; and finally, under these promptings to a national life, politics absorbed nearly all of her intellectual powers.

There is a striking parallel between this sustained effort of the

South, and the struggle of Ireland, when the latter, for the fifty years ending with the advent of the present century, was arrayed against the British, in their encroachments upon her independent government. During this half-century, Ireland maintained that she was an independent integral part of the British Empire, just as Virginia contended that she was a sovereign in the federation of States. Ireland, like a Southern State, challenged every seeming interference by the general government in her local affairs, and the claims put forth, in each instance, were inexorably contested by an adverse government, claiming supremacy, and supported by superiority of power. Both were on the eve of revolutionary secession without knowing it. The results in Ireland and the South were similar: there was but one intellectual activity, namely, politics. With the mass of Irishmen, the memory of that time is, solely, of resistance to the English. Even Curran, Ireland's great forensic advocate, secured his world-wide fame in defending Irishmen against the prosecutions of the British ministry. It was much the same at the South in the period antecedent to the civil war. She had neither literature nor science; but she had statesmen and advocates, who will be remembered as long as her soldiers and generals.

When, at last, the national germ which had long been growing below the surface, burst into view, it shot up into a body of amazing proportions. Montgomery, in 1861, was not the birthplace of a new nation; but where the majority of a vigorous young aspirant for a place in the family of nations, was proclaimed. But, notwithstanding the eloquence of its orators, and the virtue and bravery of its people, it was, as compared with its adversary, but illy prepared for the contest upon which it had entered, and the great disaster that befell four years later, was then pre-ordained. It was the unavoidable fate of the young government, that it should be denationalized on the battle-field.

The late war was a conflict between implacable enemies. Each belligerent, standing up for national life, was resistlessly coerced to fight to the last. Neither can be blamed. The past may be taxed with lack of wisdom. It may be that, as Scotland and, more lately, Ireland, have been peacefully denationalized, a preventive anticipating the dreadful event of war might years before have been devised by statesmanlike forecast. The actual combatants—the Southerner, fighting for the Confederacy, and the Northern soldier, bearing up the flag of the Union—were equals in manhood and virtue. The survivors, Federal and Confederate, at last see this, and therefore they

go in company to decorate alike the graves of the dead of both armies. All of these evils,—the backward and stationary condition of the South; a wasteful husbandry without other industries; the unstable character of her wealth, her want of a great class of freemen engaged in the different arts; her barbarically simple, social and political structure; her neglect of common schools; the absorption of all her intellectual energies in feverish and revolutionary politics; and, finally, secession and the reddened ground of a thousand battle-fields,—were due to slavery. It is gone. The malignant cancer, involving, as it seemed, every vital, and bearing in it the menace of hideous and loathsome death, was plucked out by the roots; and, after a ten years' struggle of nature, we see the body politic, slowly but surely, advancing to a healthier and better condition than before.

Here we find the dividing line between the Old and the New South. The former ended, and the latter began, with the giving of freedom to the negroes—an event which will prove in the future to have been an emancipation even more beneficial to master than to slave. Immunity from all the evils of slavery which we have catalogued, will distinguish the new South from the Old.

The sudden impoverishment of the Southern people, and the unlooked-for change in their ways of living and thinking, had they occurred in the most peaceful times and been followed with the best of governments, would have produced a profound shock and a long paralysis. But the bitterness of subjugation, and the mistake of a needlessly offensive and goading government, with harsh reconstructive measures, have prolonged the lethargy. And yet the ten years since emancipation are instructive. Slowly has the New South been disentangling herself from the débris of the Old, and she has emerged far enough to enable us to perceive that a better era has commenced. Much has been lost, but more has been saved. All the germs of true wealth and power, and the solid well-being of a community, have survived; and solace for the past, and earnest of a great future, may be found in the fact that she has reached at last, and for the first time, a position in which she can develop these elements, free from the suffocating hindrances of former days. We may now properly inquire, What of the past does the South retain, and in what will consist her future progress?

She retains her genial climate, her kindly soil, and her many natural resources; and she may be expected to make the most of them, now that the great impediment of slavery is removed. If the peace of

the American Union is assured, as every thing now benignly promises, these natural advantages will in a few generations far more than compensate for all her losses, and ultimately place her in the very van of progress.

The best inheritance of the New, from the Old, South is the Southern people. We have seen how slavery checked industrial development, and how many of its other effects were hurtful. After allowing fully for all these, there will be found a great residuum of progressive energy, of intellectual strength, and of moral worth in the people of the Southern States. They need not fear a comparison in these respects with the most enlightened communities. Great men, like Washington, Jefferson, Calhoun, Jackson, and Lee; political and military heroes, judges, lawyers, and orators, such as the South has given birth to in unbroken succession, are the unmistakable signs of a great people.

The rank and file of the Confederate armies have given proof that the men of the South must be classed, in all the elements of complete character, with the best that the world has ever seen. Crime was so infrequent that a single morning of the term of a rural court, before the war, nearly always sufficed to dispose of every indictment; there was little want or pauperism; virtue was everywhere the rule in private life, and there was seldom even the suspicion of corruption in government or the administration of justice. The history of this people since the war shows that they are possessed of the best of Anglo-Saxon mettle. They are slowly beginning to thrive wherever they have been left to govern themselves, in spite of the complete industrial revolution, the loss of property, and change of occupation, of which we have written. And in many places where reconstruction has been harshest, and negro misrule yet prevails, the whites have developed an unlooked-for self-maintaining capacity, and have demonstrated that there must be, even there, the eventual predominance of intelligence and virtue, should "natural selection" alone work to secure it.

The Southern people have learned much wisdom in the last ten years. Their heavy vote in 1872 for Horace Greeley—a man to whom a foreigner would have supposed them unappeasably hostile—if there were nothing else, would alone suffice to show that they are rapidly laying aside all hindrances to progress. And now that slavery is gone, and she has so quickly conquered the animosities of the war, the South may be likened to a capable and energetic young man, who,

having failed as the result of inevitable misfortune in a wrongly-chosen business, has been relieved of all embarrassments and has entered upon his proper calling. More may reasonably be expected of such a man, than of one more prosperous who has not had like discipline.

We turn, now, to a consideration of what will probably be the future political status of the South.

As her nationalizing tendency has been destroyed by the removal of slavery, and as her future must necessarily be shaped by Union influences, she will heartily embrace the political creed of the Union. The doctrine of the sovereignty of the States, which was advocated with very great ability by many of the Southern statesmen—notably by Calhoun in his speeches in Congress, and in his Discourse on the Constitution of the United States, and with still more taking effect by Mr. Stephens in his "Constitutional View of the War between the States," has now no disciples at the South. General Logan gave expression to the prevailing creed of the present, when he said at a recent re-union of former Confederate companions:

"In considering, then, the future of the South, there is one fact suggested at the outset which has been demonstrated to us by the logic of events. It is that under the operation of causes which, although unseen at the time, appear now to have been inevitable in their results, a vast *social organism* has been developed, and is now so far advanced in its growth as a *national body politic*, and no longer a mere aggregation of States, that *unity* is a necessity of its further development. In reviewing the past, we can now clearly see that this national organism has been *gradually developed*, and while many seek by various theories to account for the failure of the Confederacy, the result may be regarded as the necessary consequence of those laws of development under which this social organism—the United States—was being evolved."

And the South is pleased to observe that there are no genuine signs of too much centralization. On the contrary, the town system is destined to spread fast and far; and the increase of local option laws; the splitting of larger into smaller counties; the tendency to submit constitutions and many legislative acts to voters; the greater disposition to often amend the State constitutions in the interests of progress; the vigorous growth, in each State, of its own body of laws; the rapid multiplication of towns and cities with governments peculiar to each; are some of the many convincing proofs that local self-government is increasing and flourishing. Of the last particular, Judge Dillon says:

"We have popularized, and made use of, municipal institutions to such an extent as to constitute one of the most striking features of our government. It owes to them, indeed, in a great degree its decentralized character. When the English Municipal Corporations Reform Act, of 1835, was passed, there were in England and Wales, excluding London, only two hundred and forty-six places exercising municipal functions; and their aggregate population did not exceed two millions of people. In this country our municipal corporations are numbered by thousands, and the inhabitants subjected to their rule by millions."

Reflecting Southerners see, in the present condition of the Southern States, the very strongest possible guaranty that the true balance between national cohesion and local freedom is to be preserved. They see that the happy equilibrium is of a character so permanent and stable as to have survived the convulsion of civil war. The Southern States are not held as conquered provinces. On the contrary, aside from the abolition of slavery, and the fundamental legislation securing to the old slaves the full fruition of their freedom, there has been no perceptible change in the relations of these States to the United States.

Surely, to the student of history, wherein *vae victis* is written on every page, this fact has wonderful significance. It recommends the American form of government to the rest of the world as the incoming of the new stage of civilization, wherein oppression and war shall become unknown. However long contending armies may devour populations, and paralyze industry, elsewhere, we are assured that war-sick America will fight within herself no more. This assurance repays the South, a thousand fold, for all that she has lost and endured.

The great economical interest of the South, is her agriculture; and in this industry, as well as among those who conduct it, a constant transition has been taking place during the ten gears since emancipation. The change in the homes of landholders from the ease and comfort of *ante-bellum* days, is a marked one. The neat enclosures have fallen; the pleasant grounds and the flower gardens, once so trim and flourishing, are a waste; in short, all the old smiles and adornments are gone. Change at home is accompanied by still greater change without. The negroes—and they constitute the great bulk of the laboring population—tend to become a tenantry cultivating the land, in some instances, for a part of the produce, but oftener for a fixed sum of money. Many of these realize from their labors little more than enough to pay a moderate rent. Others work for wages, either in money or in some portion of the crop made by their labor. As the negroes are scarce and their labor so important, they have often, directly or indirectly, a voice in the area of land cultivated,

the mode of cultivation, and the kind of crop raised. The result, in many places, is retrogression. The face of the country is much altered. Only a small part of the land, as compared with that tilled before the war, is under cultivation: the remainder becomes wild. Could the fallen Confederates return, they would not, in many places recognize their old homes. Nearly every man of average business ability could control his slaves before the war with little trouble; but it now requires far more than ordinary capacity to find and keep good tenants, to employ laborers amid the present scarcity, and to retain and make them remunerative when employed. The freedman is a different character from his former slave self, and is to be governed by different methods; and the true art of managing him, is cabalism to many who were prosperous planters before the war. Many of these show great despondency, for there have been thousands of failures among them in the struggle with the new order of things.

But when we examine into this depression we find that it is but the result of the transition from the former régime, and not a deep-seated and fatal decay of the vitals. A new and better system is slowly developing, and can be plainly discerned among the rubbish of the old. A class of new planters, consisting mainly of men too young to have become fixed in the methods and habits of former days is springing up. They are few yet, but there is in many parts of the South, at least one who is by silent deeds teaching many watching idlers. They have remodeled their domestic economy, accommodating it to their smaller incomes and to the uncertainty of household help. They have discarded the outside kitchen, have substituted the cooking-stove for the old voracious fire-place, and have brought the well, with a pump in it, instead of the old windlass and bucket, under the roof of the dwelling, so that the household duties may be more easily dispatched by their wives and children. And they have also remodeled their planting. They diversify their crops and products, raising more grain, and introducing clover and new forage plants. Some abandon entirely the cultivation of the old slave crops, and raise food supplies for the nearest towns. These planters of the New South till less land, and strive to improve it; they study the superiority and economy of machinery; they provide themselves with better cotton-gins, often using steam to work them; they use presses which require fewer hands than the old packing-screw; better plows are used; and harrows, reapers and mowers, which in many parts of the South were seldom known before the war, are now common. This little band also keeps pace with agricultural

progress, as recorded in the journals; they seek for, and find, many new sources of profit; they prepare the people for laws fostering the interest of the planter in many particulars; they mold the opinion of their neighborhood; and their ability, skill, and wealth slowly increase. They struggle with a new order of things, having to think for themselves at every turn, and often make mis-steps, but they quickly recover themselves. The light of the new experience which they are kindling, grows brighter each year, and is beginning to prove valuable to their neighbors as well as to themselves.

It is not our object to give a false impression of the influence of the class of farmers last referred to. Their numbers are few, and their efforts are but the beginnings of the happy coming change. Their courage, power and numbers, are manifestly on the increase; and, as there is no other progressive activity in agriculture, and they meet no opposition save the passive resistance of despondency and inaction, it is almost certain that they will lay deep and sure foundations for the needed renovation of the South. It is their belief that to make agriculture generally prosperous, and to school the people to habits of thrift and saving, are the first steps—and that manufactories and trades, and heterogeneous industries, will naturally follow.

They desire Northern settlers, who will add capital and force to agricultural pursuits, and infuse new impulse and energy among the planters. A few such have already come, and are beginning to prosper. It seems rational to expect a steady influx of these for many years, bringing capital, and methods better suited to the needs of the new times, raising the value of landed property out of its impeding prostration, and strengthening the industrial force of the country. The climate, the fertile soil, the cheap land, and the numerous other natural resources, must attract, in due course of time, a vast number of new settlers, both American and foreign. And now that the misrule of the "carpet-bagger" has nearly everywhere ended, the rebuilding of the South may be rapidly hastened.

The feelings of the two races toward each other, were, for a few years after the war, bitterly hostile. The whites had all their lives seen the negroes in slavery, and, from their infancy, they had heard their preachers defend slavery, not in the abstract, as their phrase was, but in the concrete. The "concrete" meant African slavery, which was justified on the ground that the African was divinely intended in his nature for slavery, which was to him christianization and civilization, so long as he remained a slave; while the moment he was set free, he would revert to his primitive barbarism. When

these God-given slaves were suddenly cut loose from mastership, and the wealth of the capitalist, the portion of the orphan, and the mite of the widow were swept away at once by emancipation, either directly, or as a necessary consequence, there was a great shock given to the whites. But when, three years afterwards, a new constituency was created, in which the slaves, just emancipated, outnumbered the whites in many counties, the storm of passion that burst forth can hardly be described. The whites feared that the old relation was about to be inverted, and that they would be made slaves to the negroes. There was many a deed of violence, and many a poor negro paid by his life for a few offensive words.

This wonderful change has taken place. When the Southern States were "reconstructed," as it is termed, in 1868, a negro school-keeper or preacher, if known to be a Republican in politics—as he generally was—was hardly safe anywhere beyond the limits of a city. The negro schools were often broken up by mobs, and sometimes black congregations were attacked at night in their churches, and dispersed by armed whites in disguise. Now, the colored children troop securely to school, and the colored churches and their congregations are sternly protected by the law, everywhere. Seven years ago a colored person could hardly get justice, in even the plainest case, from a jury of the other race. Now, in all of the courts, he has the influence of white men to aid him, and rarely is an unjust verdict rendered. The two races are on better terms with each other. It is not needful that the negro shall legislate or hold office in order to protect himself. We are inclined to think that he can not do these things in a manner satisfactory to himself. He slowly rises, however, and his importance is felt more and more. His labor is a necessity. Learning to use it aright, he will surely win all that he deserves. The healthful sentiment prevails everywhere, at the North as at the South, and with the late slave also, that to force his growth is as unfortunate to him, as is misjudged parental assistance to grown-up children. The colored race in the South must be educated, by the struggle for self-support, into self-maintenance. This training, like the material recuperation of the South, will require time, with patience and hopefulness.

The negro tends resistlessly to a fixed position in his own class. He does not *wish* to ride in the same railway car with fine ladies and gentlemen, nor could you persuade him to send his children to a mixed school to be teased by white scholars. He will not be legislated out of his natural circle where he feels comfortable, into one where he

will be ill at ease. He seeks for himself a separate home, school, church, and occupation, in all of which he can at a distance imitate the white. The statute books may be covered with laws having a different tendency, but they will be powerless to check the current of separation. In a domestic world, a company and circle, of his own, the negro will make a start for himself.

In noticing the leading features of the New South, we have merely hinted at her rich natural endowments. We have deemed of more importance the character of her people, the new views and principles beginning to assert themselves, and the great economical changes following, and to follow, the abolition of slavery. For upon these the future mainly depends.

The South is in a thorough and long transition. Her fields are to be made fertile, and to smile beautifully with an infinite variety of products; her provisional labor is to be gradually supplanted by a permanent system; industries, trades, and manufactories are to be founded and numerously multiplied; she is to have local organizations which will foster more of self-government; her common schools are to be re-organized and rendered truly serviceable to all; and she has also her part to do in the fields of literature, science and art, as well as in domestic and national politics. We must not be over-sanguine in hope of her immediate progress, but we can certainly take courage when we find that every one who perceptibly influences society, by precept or by example—whether he be prominent like Gordon or Lamar, or only a humble planter leading the fore-row in his fields, is seeking for and finding the right path. These leaders must, in the nature of things, have a larger following every year. In due time, their children, and their children's children, will make the South, as one of its integral parts, no less prosperous than any portion of our whole country.

# THE STRUCTURE OF THE UNIVERSE.

THE noblest and the most difficult of all the subjects with which astronomy has to deal, is the problem of determining the true structure of the universe. "A knowledge of the construction of the heavens," said Sir W. Herschel toward the close of his career as an observer, "has always been the ultimate object of my observations." Yet few of the astronomers whose names stand highest in the roll of fame, and still fewer of those who have held official rank in the science, have given close attention to this subject. The problems involved are indeed too difficult to be solved by the ordinary methods of astronomical observation or calculation. The exact details, for determining which great public observatories have been formed, are of little use in the inquiry. The stars must be dealt with, not individually but by thousands and tens of thousands, if the galaxy is to reveal its secrets. Such methods as Sir W. Herschel employed in dealing with the problems of the universe appear rough, no doubt, and inexact, compared with the systematic study of star-positions, carried out by official astronomers, to subserve terrestrial purposes. But finer researches, more minute and detailed observations, fail utterly when applied to the mighty proportions of the universe revealed by the telescope. We must draw broad and strong lines in endeavoring to picture the galaxy. If we attempt to refine, the picture becomes meaningless.

It is probably on this account, and because detailed observations are in themselves more easily comprehended, while their specific value in terrestrial applications of astronomy is altogether greater, that so few astronomers have discussed the problems presented by the structure of the universe. Not only have astronomers seemed unwilling to undertake the observations necessary for the purpose, but they have not been careful even to investigate the observations made by others. We speak without exaggeration, and indeed from our own knowledge, when we assert that very few of the chiefs of the leading European observatories at the present time have mastered the full scope and bearing of the wonderful series of papers in which Sir W. Herschel presented the results of his researches into the star depths

between the years 1784 and 1818—that is, from the year when he first indicated his intention of dealing with the great problem, and that in which he offered his last observational contributions toward its solution. We would not say that the official astronomers of Europe actually accept the absurd travesty of Herschel's researches presented in text-books (for which no less eminent an astronomer than Arago is mainly responsible), but it becomes manifest, whenever they refer to the work of Sir W. Herschel, that they confuse his earlier views (or rather fancies) with the results to which he was led by his actual researches, and regard the latest ideas thrown out by him as worthy of equal consideration with the opinions he definitely indicated as based on observation. The late Wilhelm Struve, of all the really eminent official astronomers of the present century, after adopting for many years the vague ideas respecting Herschel's work thus commonly entertained, was led by the careful investigation of a complete series of W. Herschel's papers presented to him by J. Herschel, to the conclusion that hitherto he had wholly misapprehended the views of the great astronomer of Slough. It was then that Struve asked, with some surprise, "Pourquoi les astronomes ont-ils maintenu généralement l'ancien système enoncé en 1785, quoiqu'il eût été entièrement abandonné par l'auteur lui-même?" Even he, however, though perceiving that the earlier views of Herschel had been abandoned, did not sufficiently distinguish between Herschel's later *opinions* and *ideas*—that is, between views to which Herschel was led by his observations, and ideas which he regarded as worthy of being tested by observation but had not actually so tested.

We propose in this essay to indicate the actual range of W. Herschel's work on this problem of the structure of the universe, carefully defining what he proved, disproved, and conjectured; as also the methods he employed, which, while altogether diverse, have been as completely confounded together as his theories and speculations. We shall then consider the bearing of later researches, including our own, on this problem of the structure of the universe, and indicate the line on which, as we think, the problem may be most successfully attacked hereafter. For at the outset we wish to impress upon the reader the fact that, though some outworks have yielded to the attacks of astronomers, the great problem itself still remains unmastered. It would be more agreeable, doubtless, if we could enunciate definite opinions, and clearly say how the universe of stars is formed. But it was only when the true complexity of the problem was as yet unrecognized that this could be done. Then, as W. Struve has well

pointed out, a complete system could be advanced. Sir W. Herschel's original theory, for example, as advanced in 1785, was "un système entier, imposant par la hardiesse et la précision géométrique de sa construction." Whereas, proceeds Struve, "dans ses traités publiés depuis 1802, on ne rencontre que des vues partielles." But, as we can make no question that imperfect and partial though the later views of W. Herschel were, they were more exact and trustworthy than the fuller system of 1785, so it must be admitted that it is a better preparation toward the final solution of the great problem of the universe to eliminate what is unknown and doubtful, than to pretend to advance a complete theory while as yet the evidence for forming one is insufficient.

Very little was done before W. Herschel's time to master this problem by observational or other researches. Yet it would not be fair to pass over the work of Wright, Kant, Lambert, and Michell. Wright, by means of a very small telescope satisfied himself that the Milky Way consists entirely of stars, and adopting the theory that the stars are arranged with a certain general uniformity throughout the galaxy, he was led directly by the observed richness of stars on the zone of the Milky Way to the theory commonly attributed to W. Herschel and known as the Grindstone Theory. This he presented in the following terms: "If we suppose the sun to be plunged in a vast stratum of stars, of inconsiderable thickness compared with its dimensions in other respects, it is not difficult to see that the actual appearance of the heavens may be reconciled with a harmonious arrangement of the constituent bodies of such a system. . . . It is evident that the stars would appear to be distributed in least abundance in the opposite directions of the thickness of the stratum, the visual line being shortest in these directions; and that the number of visible stars would increase as the stratum was viewed through a greater depth, until at length from the continual crowding of the stars behind each other, it would ultimately assume the appearance of a zone of light." [1]

It was in 1750 that Wright advanced this theory. In 1755, Kant (who in 1751 had read a translation of Wright's essay printed in a Hamburg journal) advanced a theory which in parts corresponded very closely with Wright's. He extended the reasoning, as Wright had already done, to the few nebulæ then known, which he regarded as external galaxies similar in dignity in the scale of creation to the

[1] From an abstract of Wright's paper in Professor Grant's excellent work, "A History of Physical Astronomy."

galaxy of which our sun is a member. He conceived also the thought that the system of galaxies thus indicated formed but the third term of a series of worlds and systems, satellite systems and solar systems being the first and second terms,—"and these first terms of an infinite series," he proceeds, "enable us to infer the nature of the rest of the series.[1]

Lambert advanced a theory unlike Wright's and therefore unlike Kant's in several important points,—though Kant remarked, in 1763, that the accordance between Lambert's views and his own "extended even to the most minute details." In Lambert's theory solar systems were regarded as of the first order. He considered that our sun belongs to a vast globular group or cluster of suns, forming a system of the second order, which according to his view includes all the scattered stars not belonging to the Milky Way. He maintained that many systems of the second order combine to form a system of the third order, this system being so shaped (in the case at least of the group of clusters to which our sun's cluster belongs) as to form a stratum, the concourse of clusters in the direction of the greatest range of the system forming the milky light of the galactic zone. He then proceeded to consider the probability that other systems of the third order exist, forming together a system of the fourth order, and he touches on the inference that there may be systems of higher orders *ad infinitum*. This theory was manifestly altogether distinct from Kant's, or rather Wright's, while Wright's interpretation of the Milky Way (the only point in which either theory touches on observed facts) corresponded closely with the theory advocated by Herschel in 1785, Lambert's more nearly resembled the theory adopted by Herschel in 1802 and maintained thence to the close of his career as an observer.[2]

[1] "Allgemeine Naturgesichte und Theorie des Himmels; oder Versuch von der Verfassung und dem Mechanischen Ursprunge des ganzen Weltgebündes nach Newton'schen grundsatzen Abgehandelt."

[2] There is one fine passsage in Lambert's paper which though fanciful is well worth studying: "How far soever," he says, "we may extend the scale, we must necessarily stop at last. And where? At the center of centers, at the center of creation, which I should be inclined to call the capital of the universe, inasmuch as thence originates motion of every kind, and there stands the great wheel in which work the teeth of all the rest. From thence the laws are issued which govern and uphold the universe, or rather there they resolve themselves into one law, of all others most simple. But who would be competent to measure the space and time which all the globes, all the worlds, all the worlds of worlds employ in revolving around that immense body—the Throne of Nature, and the footstool of the Divinity! What painter, what poet, what imagination, is sufficiently exalted to describe the beauty, the magnificence, the grandeur, of this source of all that is beautiful, great, and

Michell's work, though less ambitious—being limited to the lucid stars, not extended to the telescopic orbs forming the Milky Way —was more important. Whereas Wright, Kant, and Lambert, had advanced theories, Michell demonstrated facts. We owe to him the complete, though in his day little understood, proof, of the association between the component members of many double stars. It is true that Herschel first traced the motion of two stars around a common center; and this was the first evidence which ordinary minds could understand. But Michell's reasoning was none the less demonstrative. He showed by mathematical argument (the force of which as used by Struve *after* Herschel's discovery of the orbital motion of double stars, was at once admitted) that a considerable proportion among the double stars *must* be physically connected together. Extending his reasoning to star-groups, he showed that, to use his own words, "the stars are really collected together in clusters in some places, where they form a kind of systems; while in others there are either few or none of them, to whatever cause this may be owing, whether to their mutual gravitation or to some other law or appointment of the Creator." He considered next the evidence respecting our sun, as perhaps a member of some such system. This, he thought, is probably the case. "There are some marks," he proceeds, "by which we may with great probability include some and exclude others—while the rest remain more doubtful. Those stars which are found in clusters and surrounded by many others at a small distance from them, belong probably to other systems and not to ours. And those stars which are surrounded with nebula are probably only very great stars, which, on account of their superior magnitude, are singly visible, while the others which compose the remaining parts of the same system are so small as to escape our sight. And those nebulæ in which we can discern only a few stars even with the assistance of the best telescopes, are probably systems which are still more distant than the rest. . . . But those stars which, being placed at a greater distance from each other, compose the larger constellations, and such as have few or no smaller stars near them when examined with telescopes, belong probably to our own system." He regarded variable stars and red stars, as probably members of the same system, though not on evidence which would be admitted at the present time when the vast distances of the stars and the nature of stellar spectra have been ascertained.

magnificent; and from whence order and harmony flow in eternal streams through the whole bounds of the universe." The very fact that such a description as this has no definite meaning, corresponds to the mystery which the description is intended to present.

Although, prior to 1784, Sir W. Herschel had made many astronomical observations, it was not until that year that he definitely undertook the task of determining the structure of the universe. His paper, which appeared in the Philosophical Transactions for 1784, was, however, merely preliminary. He therein sketched his views respecting the probable constitution of the stellar heavens, views closely resembling Wright's, and observed how he proposed to attack the problem by an extension of Wright's method, with greater telescopic power. Unfortunately Arago, who has been followed by every French writer on astronomy, and by a large proportion of such writers in England, so far misunderstood the paper of 1784 as to take the ideas therein mentioned as though they presented a theory which Herschel had established. And although Struve has pointed out the nature of Arago's mistake, it has been repeated very often in books on astronomy. Yet another and more serious mistake has been made by an excellent observer of the stars—Admiral Smyth, through a combination of Arago's blunder with another of his own. Arago had adopted Herschel's idea (1784) that the extension of the stellar system in the direction of the Milky Way, probably exceeds, about a hundred times, the extension at right angles to the stratum. In the paper of 1785, Herschel announced, as the result of his observations, that the former extension appears to exceed the latter only about five and a half times. Arago, as Struve points out, overlooks this later estimate altogether. Smyth, on the other hand, notices it, but combines it with the other in such sort as to give our sidereal system length, breadth, and thickness proportioned as 100, 5½, and unity!

In the paper of 1785, Herschel described what is commonly called his method of star-gauging; though, as he subsequently devised another, this one should be called his first method. It was exceedingly simple, and had indeed been already indicated by Wright. He used throughout the same telescope, which he directed to different parts of the star-depths; moreover, he used the same "power," thus having always the same extent of telescopic field. Assuming a general uniformity in the distribution of stars within the sidereal system (a uniformity, however, which did not exclude the possibility of local irregularities), and assuming further that his telescope, 18 inches in aperture, reached the stars belonging to the remotest parts of the galaxy, he considered that the number of stars seen in each field of view afforded a fair criterion of the extension of the sidereal system in the corresponding direction. For, on the assumptions made, the number of stars would be greater, the greater the distance of the boundary of the system,

precisely as the quantity of water passed through by a seaman's lead-line is greater the greater the depth at which the sea bottom lies. By comparing together the lengths of the various lines formed in this manner, the actual shape of the region of space occupied by the sidereal system would be determined, always supposing the assumptions were correct on which this method of star-gauging was based.

It is by way of reference to one of these assumptions that Herschel's monument bears the celebrated words, "*Cœlorum perrupit claustra.*" It had been generally assumed before his time—though Wright, Kant, and Lambert, as we have seen, had judged otherwise—that the sidereal system is unfathomable. Herschel's very method of observation assumed that it was fathomable with his gauging telescope. He considered that where he could count every star in the telescopic field he had fathomed the depth of the sidereal universe. The darkness that lay beyond, forming the black back-ground of the field of view, belonged to space outside the sidereal system. Thus he had at once marked down and passed beyond the barriers of the universe—"*Cœlorum perrupit claustra.*" The assumption that he had thus passed the limits of the galaxy was never definitely rejected by him. He found reason, indeed, later in his career, to believe that portions of the Milky Way are unfathomable, and Struve has even stated that Herschel pronounced the Milky Way to be everywhere unfathomable. But Herschel's words bear no such meaning. He said that when his gauges no longer resolved the Milky Way into stars, it was not because its nature is ambiguous, but because it is fathomless.[1] Where he *could* resolve it into stars, his former assumption held good, whether the constitution of the sidereal system is such as he had supposed in 1785, or whether (according to his later views as we shall presently see) the constitution of the Milky Way is unlike that of the rest of the sidereal system.

While Sir W. Herschel thus continued to believe that in nearly every direction he could penetrate with his eighteen-inch mirror to the utmost limits of the sidereal system, his mind, attentive to every indication, soon perceived that the other assumption, of a general uniformity of stellar distribution, must be abandoned. The recognition of binary systems doubtless had its influence in modifying

[1] Struve, when translating this passage into German in his note-book, probably wrote "wenn" by mistake for the English "when." At any rate in his "Etudes d'Astronomie Stellaire," he thus renders Herschel's words, "Nous pouvons faire la conclusion que *si* nos jauges cessent résoudre la Voie Lactée en étoiles, ce n'est point parceque la nature en est douteuse mais parce qu'elle est insondable."

Herschel's views. He had found that close double stars are not always, as he had begun by imagining, two stars which though nearly on the same visual line are in reality very far distant from each other, but are real pairs associated together by the mighty bonds of their mutual attractive energy. He extended the inference to triple, quadruple, and generally to multiple star-systems. Having thus perceived that apparent association in many cases corresponds to a real association, it was natural that he should be led directly to a conclusion already demonstrated (in a more subtle fashion) by Michell, that "the stars are *really* collected together in clusters in some places, where they form a kind of systems, while in others there are few or none of them." Gradually he extended this view even to such vast clustering aggregations as are seen in the Milky Way where it crosses the constellation Cygnus. "We may indeed," he says, in 1802 (seventeen years, be it noticed, after his better known views about the sidereal system had been advanced), "ascribe the increase both of brightness and compression here, to a greater depth of the space which contains these stars; but this will equally tend to show their clustering condition; for since the increase is gradual, the space containing these clusters of stars must tend to a spherical form if the gradual increase of brightness is to be explained by the situation of the stars."

We can not wonder that he extended such considerations to the Milky Way itself. His words are very plain on this point. "The stars we consider as insulated," he says, "are also surrounded by a magnificent collection of innumerable stars, called the Milky Way, which must occasion a very powerful balance of opposite attractions to hold the intermediate stars in a state of rest. For though our sun and all the stars we see may truly be said to be in the plane of the Milky Way, yet *I am now convinced* by a long inspection and continued examination of it, *that the Milky Way itself consists of stars very differently scattered from those which lie immediately about us.*"

Still more clearly did he announce, in 1811, the complete change which had taken place in his views respecting the structure of the sidereal system. "I must freely confess," he says, "that by continuing my sweeps of the heavens my opinion of the arrangement of the stars and their magnitudes, and some other particulars, has undergone a gradual change; and indeed, when the novelty of the subject is considered we can not be surprised that many things formerly taken for granted, should on examination prove to be different from what they were generally but incautiously supposed to be. For

instance an equal scattering of the stars may be admitted in certain calculations; but when we examine the Milky Way, or the closely compressed clusters of stars, of which my catalogues have recorded so many instances, this supposed equality of scattering must be given up."

Having thus abandoned one of the assumptions on which his famous method of star-gauging had been based, Herschel no longer placed any reliance on that method, except where an equality of scattering prevailed, and therefore he did not trust the method, as applied to "the Milky Way or closely compressed clusters of stars" where the equality of scattering had been abandoned. This is in itself a surprising conclusion when we remember how astronomical text-books and even books by astronomers of considerable eminence, attribute to Herschel the very opinion respecting the Milky Way which he thus definitely abandoned. But it is still more remarkable that, though he now proceeded to devise a new method of gauging such regions of the stellar heavens as the Milky Way and the closely compressed clusters, and though this method was as distinct as possible from the former, yet the two are commonly confounded together as though they formed parts of a single system of star-gauging.

The characteristic feature of the earlier method of star-gauging was the employment of the same telescope, used with unchanged power. Different parts of the heavens, thus examined with one constant gauging instrument, were compared together. Herschel's second method was altogether unlike the first. He now proposed to use different telescopes, and to compare together the information they gave respecting a given stellar region. He had learned to doubt whether numerical gauging could be trusted, or rather he had become convinced that the stars are scattered according to such diverse laws throughout the galaxy, as to render numerical statistics an untrustworthy means of determining the shape and extension of the sidereal system. But he still considered that there was a certain general uniformity of stellar dimensions which would render the brightness of stars a fair test (taking averages) of their distance. So that if the stars of a group could be distinguished *as* stars with a particular power, and with no lower power, it was to be inferred that the group lay at a particular distance corresponding to that power. Or if a certain set of stars in a particular region of the heavens were seen as such with a certain power, another set coming into view as discrete stars with a higher power, another set with a yet higher power, and so on, then those sets of stars in the same region,

were assumed to lie at greater and greater distances, corresponding to the higher and higher powers required to bring them into view. Again, a nebula which was resolved into stars with a given power would have its distance indicated by this method of gauging, on the assumption always that the principle on which the method was based was correct.

Sir W. Herschel did not live to complete the series of observations he had planned to carry out by this new method. Nor can the results he actually announced, be regarded as indicating that he was convinced the method had stood the test of experiment. For we find that in 1785 he published a number of results obtained by his numerical gauge, though he afterward abandoned that method of gauging the star-depths as untrustworthy. In 1818, he published, in like manner, a number of results obtained by his light-gauge; and it is more than probable that had he lived to discuss these results and extend the application of the method itself, in the same way as he dealt with the former method of gauging, he would have been led to the conclusion that the principle on which the second method is based is quite as little reliable as that assumed for the basis of the first. We have, indeed, the means of judging how he would have decided in the latter case, if we notice the nature of his reasoning in the earlier one. When he found that certain regions exceedingly rich in stars, were round in apparent shape, he inferred that they were spherical in real shape, and not (as the principle of his first gauging method would have shown), enormously extended arms or horns of the sidereal system, seen in the direction of their length. He rejected the latter view as manifestly inconsistent with the laws of probability. But the second method led to precisely similar results if the observations were interpreted as Herschel had suggested when he devised this method. Rich portions of the Milky Way, occupying a small extent of the star-sphere, were found to be partially resolved with Herschel's lowest telescopic power, yet not completely resolved with his highest. The portions resolved with low power lay, according to his intrepretation, relatively very near — they were, for instance, not much farther off, relatively, than the average distance of the stars forming the constellations. Those which resisted the resolving power of his largest telescopes were, according to his hypothesis, many times as far removed. Now the apparent breadth of these rich regions is small —corresponding on the average, to about the one-hundredth part of the distance, if for the moment we regard a group clustering over a rounded region of the heavens, as spherical in shape. Representing

the distance of the remotest or irresolvable part by 2000, the cross breadth of the cluster at that distance would be on the average about as 20, while the distance of the nearest or most readily resolved part would be about 100, and the cross breadth as about 1. The length of the cluster would thus be about 900 (the excess of 1000 over 100), the breadth varying from about 1 at the nearest end, to about 20 at the farthest. It is difficult to imagine the possibility that a cluster of such a shape could exist at all. But the mere conception of its existence is only a small part of the difficulty. The real argument against such an interpretation of the phenomenon, is that derived from the improbability, that not only one cluster of such proportions, but many, are so posited that the observer on earth looks along them in the direction of their greatest length. The argument is in fact precisely the same as that used by Sir W. Herschel himself, against the supposition that regions *numerically* rich could be interpreted by the assumption on which his first method of star-gauging had been based. For it matters nothing whether enormous relative extension in the direction of the line of sight was indicated by numerical richness, or by closeness of aggregation and faintness of stellar lights, seeing that it is in the relative extension itself, or rather in the particular direction of such extension, not in the manner of its indication, that the difficulty resides.

It may appear perhaps at this stage to the reader that our reasoning respecting the two methods of gauging applied by Sir W. Herschel to the star depths amounts in point of fact to an attempt to show that his observations upon the stars,—or at least, such observations as were intended to indicate the true nature of the structure of the universe,—possessed no real value. If the two methods he devised for gauging the depths of the universe can both be shown to be unsound, how, it may be argued, can the results he obtained in applying them have any real value? But, in reality, no such inference is to be drawn from our present line of reasoning, as that the work of Herschel was of little value, or even that it had less value than it has been judged to possess by persons who have not been very careful to test its actual character. The gauges of Sir W. Herschel by both methods remain; they have their interpretation even though that interpretation be unlike that which Herschel suggested before he effected them. And be it remembered that it was himself who rejected the interpretation of results obtained by the first method; while it is only by an extension of the argument on which he based that rejection, that we have shown how the interpretation suggested for results

obtained by the second method fails in a great number of instances. The very circumstance that the evidence he collected by the two methods, led to the rejection of two assumptions which before had been quite commonly adopted by astronomers, shows the real value of the work which he accomplished. If we take his statement that he had found the stars of the Milky Way "to be quite differently scattered from those which lie immediately about us," where it stands we may view it as an admission that his first method of star-gauging originally devised for the interpretation of the Milky Way in particular, had failed of its purpose. But we must also regard the statement as the announcement of an important astronomical discovery. And so again the result, not explicitly stated but implicitly contained in the papers of 1817 and 1818, that the distribution and magnitudes of stars within clustering aggregations are so various that portions of the cluster lying equally distant from us require very different powers to effect their resolution, is a discovery and a very important one. Without doubt Herschel would have announced it as such had he recognized this inference from his work, though he might also have been careful to indicate how far this result was from what he had anticipated when he began the work.[1]

[1] In his fanciful and not very accurate book, the "Romance of Astronomy," Mr. R. K. Miller, F. R. A. S., denies that Herschel "virtually abandoned his earlier system of star-gauging and gave up his cloven disk." "We can not think," says he, "that Herschel's language anywhere warrants this. No doubt the established fact that some stars are much smaller than others, weakens to a certain extent a theory based upon the idea of general equality, but it by no means upsets it. The indubitable fact remains that if two stars be taken at random, one of which is brighter than the other, the probable reason is that it is the nearer rather than the larger. In spite of all exceptions this remains, and it is the back-bone of Herschel's speculations. And we certainly think that if he had abandoned his cloven disk theory, which he justly regarded as one of his most important achievements, he would have published the fact explicitly, instead of leaving it to be deduced inferentially from a stray sentence here and another there." This is manifestly written in ignorance of what Herschel really did say, as well about the cloven disk theory, as about his change of opinion subsequent to the publication of that theory. In publishing the theory of 1785, the only explicit enunciation of the cloven disk theory, Sir W. Herschel had in the most definite manner indicated that he was not satisfied with the evidence, and wished to wait until he had more thoroughly investigated the subject. "I would not be understood," he says, "to lay a greater stress on these calculations than the principles on which they are founded will permit; and if, hereafter, we shall find reason, from experience and observation, to believe that there are parts of our system where the stars are not scattered in the manner here supposed, we ought then to make proper exceptions." There would therefore have been no occasion for the explicit statement spoken of by Mr. Miller. But to say the truth I do not know what more could be required in the way of explicit withdrawal than what we actually find in Herschel's papers of 1802 and 1811. He was writing always for those who were attending to his statements, not for persons who three-quarters of a century later might trust to the extracts made by compilers. He knew that his paper of

But in reality those who regard W. Herschel's star-gauging as his most important work appreciate very ill the true scope and purpose of his labors. His numerical star-gauges were merely published, as he himself states, to give an idea of the principle of the method he proposed to use if (as failed to happen) his observations should confirm the accuracy of the method. The gaugings by the other method were all carried out in a very short time, and when he was very old. He accomplished his most important work in cataloguing the nebulæ, and in carefully studying the characteristic features of these objects. We may be said to owe almost entirely to him and to Sir J. Herschel our present list of nebulæ. When Sir W. Herschel began his labors, only about 130 nebulæ were known, of which 103 belonged to the well-known list published by Messier. In 1786, W. Herschel published a list of 1000 nebulæ; three years later he added another list of 1000; and finally, in 1802, he formed a supplementary list of 500 nebulæ. To complete the history of nebular research, we may add here that Sir J. Herschel having discovered 500 new nebulæ while examining parts of the heavens already surveyed by his father, went to the Cape of Good Hope, and there formed a catalogue of 1708 southern nebulæ. Of about 5500 nebulæ at present known, 4708 were discovered by the Herschels, father and son.

And here again I have to touch on the carelessness with which the work of the elder Herschel has been treated by the writers of books on astronomy, from Arago down. It is not uncommon to find the absolute statement made that Sir W. Herschel supposed all the nebulæ to be external sidereal systems. But even when this particularly gross error is avoided, we find it usually stated that whereas at the beginning of his study of the nebulæ Herschel thought they all consisted of stars, forming sidereal systems beyond the limits of our own, he was led later on to suspect that many of them consist of gaseous matter. In reality, however, Herschel not only never committed himself to the statement that all the nebulæ are outlying

1785 had clearly indicated his purpose of dealing specially with the phenomena presented by the Milky Way. The passage I have just quoted states that regions are to be excepted where the stars are not scattered in the manner supposed, and in 1802 he says, "I am now convinced that the Milky Way itself consists of stars very differently scattered from those which are immediately above us;" while in opening his most important paper of the year 1811, he freely confesses that his opinion of the arrangement of the stars and their magnitudes has undergone a gradual change," and that "when we examine the Milky Way, or the closely compressed clusters of stars, the supposed equality of scattering must be given up." Nothing could be more explicit than these statements. That W. Herschel "regarded the cloven disk theory as one of his most important achievements," is an assertion for which there is not a particle of evidence.

galaxies like our own, but on the contrary he definitely distinguished between nebulæ which he believed to be outlying milky ways, and others (far the greater number) which he regarded as either subordinate members of other galaxies or else as forming part and parcel of our own sidereal system. What Herschel really believed, in 1785, the time to which nine-tenths of the text-book references belong, was simply this, that our sidereal system is a comparatively young stratum of many millions of stars, including within its range many subordinate clusters, while the nebulæ for the most part he regarded either as the subordinate parts of another great nebulous stratum, or as actually the remains of a very large branch of our own galaxy. This is so opposed to received ideas respecting Herschel's views that probably many may imagine that no amount of argument could establish the fact. I shall not require, however, to argue the matter. It is only necessary for me to quote Herschel's own very plain statement of his opinion:[1]

"We should recollect," he says, "that the condensation of stars has been ascribed to a gradual approach; and whoever reflects upon the number of ages that must have passed before some of the clusters could be so far condensed as we find them at present, will not wonder if I ascribe a certain air of youth and vigor to many very regularly scattered regions of our sidereal stratum. There are, moreover, many places in the stratum where there is the greatest reason to believe that the stars, if we may judge from appearances, are now drawing toward various secondary centers, and will in time separate into different clusters so as to occasion many subdivisions. Hence we may surmise that when a nebulous stratum consists chiefly of nebulæ of the first and second form" (two orders of subordinate nebulæ already described), "it probably owes its origin to what may be called the decay of a great compound nebula of the third form" (an order to which Herschel regarded our galaxy as belonging); "and that the subdivisions which happened to it in the length of time occasioned all the small nebulæ which spring from it to lie in a certain range, according as they were detached from the primary one. In like manner our system, after numbers of ages, may very possibly become divided so as to give rise to a stratum of two or three hundred nebulæ; for it would not be difficult to point out so many beginning or gathering clusters in it. This view of the subject

[1] Unfortunately, this statement comes very late in the paper; and we may invariably notice that the compilers limit their attention to the first few pages of each of Herschel's first few essays.

throws a considerable light upon the appearance of that remarkable collection of many hundreds of nebulæ which are to be seen in what I have called the nebulous stratum of Coma Berenices. It appears from the extended and branching figure of our nebula, that there is room for the decomposed nebulæ of a large reduced former great one to approach nearer to us in the sides than in other parts. *Nay, possibly, there might originally be another very large joining branch, which in time became separated by the condensation of the stars: and this may be the reason of the little remaining breadth of our system in that very place; for the nebulæ of the stratum of Coma are brightest and most crowded just opposite our situation, or in the pole of our system.* As soon as this idea was suggested I tried also the opposite pole, where accordingly I have met with a great number of nebulæ, though under a much more scattered form."

It will be of course obvious that the italicized sentence does not imply Herschel's adoption of the theory there indicated. But we see that the theory is offered as an alternative for another, equally irreconcilable with ideas commonly attributed to Sir W. Herschel. Moreover admission of the possibility that the great nebulous regions outside the Milky Way may be the remains of *branches* formerly belonging to our star-stratum, is in itself very important as showing how lightly he held by the cloven disk theory even in 1785.

The earlier views of Sir W. Herschel concerning nebulæ, did so far differ from those he adopted later in his career, that at first he supposed all nebulæ to consist of stars, whereas in 1811 he adopted the theory that many nebulæ are really vaporous or gaseous. It is worthy of notice that he introduces this new view in the same paragraph with his admission that he had changed his opinion respecting the Milky Way. Yet, whereas the admission respecting the nebulæ has been generally noticed (possibly because occurring early in his treatment of that particular branch of his subject) the admission concerning the Milky Way escaped attention until quite recently.

In 1789, Herschel had indicated various degrees of stellar aggregation, from stars spread uniformly to the most closely compressed clusters. In 1802 he first mentioned his recognition of certain regions lit up by a faint but widely spread luminosity. In 1814 he arranged all the phenomena of the star-depths into a single series, ranging from "the immensity of the widely diffused and seemingly chaotic nebulous matter," to "highly complicated and most artificially constructed globular clusters of compressed stars." The series runs as follows: "Diffused nebulosity; irregular nebulæ; planetary nebulæ; nebulous

stars; single stars; double and multiple systems; diffused clusters; ordinary stellar nebulæ; closely set nebulæ; nebulæ barely resolvable with the highest telescopic powers; irresolvable nebulæ really consisting of stars, but too remote for telescopic mastery." It will be seen that the two extremes of this series resemble each other in one respect; objects of a truly nebulous nature and star-clusters too remote to be resolved, present the same appearance of irresolvable nebulosity. Hence Sir W. Herschel thought it well to form a separate order of objects which *might* belong to either of those extreme orders, such objects he called "ambiguous," being "of such a construction, or at such a distance from us, that the highest power of penetration which hitherto has been applied to them, leaves it undecided whether they belong to the class of nebulæ or stars."

I shall revert presently to the work of Sir W. Herschel, having hitherto left untouched his researches into the question of the sun's motion and the motions of other suns within the star-depths. But it will be well at present to pass to what has been done since Herschel's time in dealing with the problems suggested by the distribution of stars and nebulæ.

Sir J. Herschel's work was directed chiefly to the completion of the surveys which his father had begun. But one peculiar feature of the star-depths which came under the younger Herschel's notice, deserves to be specially mentioned. I refer to the Nubeculæ, or Magellanic Clouds. These are two round patches of light resembling the Milky Way in luster and character. Now J. Herschel reasoned respecting these round-looking clouds, much as his father had reasoned respecting the round-looking clustering aggregations along the zone of the Milky Way. "Were there but one such object," he says, "it might be maintained without utter improbability that its apparent sphericity is only an effect of foreshadowing," the true shape of the cloud being rather cylindrical than spherical, the length of the cylinder being by a strange chance directed precisely toward the sun. "But such an adjustment, improbable enough in one case, must be rejected as too much so for fair argument in two cases." We must conclude, therefore, that the Magellanic Clouds are roughly spherical in shape; whence it follows, their apparent size being taken into account, that the remotest portion of the region of space occupied by either, lies at a distance exceeding that of the nearest portion of the same Nubecula only about as ten exceeds nine. Hence, according to the principle on which his father's second method of star-gauging was based, it should follow that the telescope resolving the nearer

parts of either Nubecula ought to be very nearly able to resolve the remoter parts. For instance, if a telescope 9 inches in aperture resolved the nearer parts of the Nubecula Major into stars, a telescope somewhat less than 10 inches in aperture, ought to resolve the remoter parts. "Yet," says Sir J. Herschel, "within this globular space we have collected upward of 600 stars of the 7th, 8th, 9th, and 10th magnitudes" (that is, stars from an order visible to powerful eyesight without any glass at all, down to stars visible with a 2 inch telescope), "nearly 300 nebulæ, and globular and other clusters *of all degrees of resolvability*, and smaller scattered stars innumerable of every inferior magnitude, from the 10th to such as by their multitude and minuteness constitute irresolvable nebulosity, extending over tracts of many square degrees." "It must therefore be taken as a demonstrated fact, that stars of the 7th and 8th magnitude, and irresolvable nebulæ, may coexist within limits of distance not differing more in proportion than as 9 to 10,"—a complete disproof of the assumptions on which the second method of star-gauging was originally based.

The first work however, of an absolutely original character, after W. Herschel's labors were concluded, was that of the elder Struve. He had been led, by a remark of Piazzi, to notice that the stars of the brighter orders are more richly strewn over the zone of the Milky Way than elsewhere on the celestial vault. He tested the matter, therefore, by comparing the number of stars in Weiss's catalogue of 31,085 stars, intended to include all from the first to the ninth magnitude, between fifteen degrees north and fifteen degrees south of the equator. He found the parts of the equatorial zone crossed by the Milky Way to be much more richly strewn with stars of these leading orders than the rest of the zone. It was the discrepancy between this result and Herschel's cloven disk theory which first led Struve to go carefully over Herschel's whole series of papers. For manifestly, if the principle of a general uniformity of stellar distribution had been true, the observed peculiarity ought not to have been presented. The sidereal stratum exceeds in thickness, as well as in length and breadth, the diameter of the sphere of ninth magnitude stars, and therefore stars of the ninth magnitude being thus spread uniformly throughout a sphere whose boundary lies wholly within the sidereal system, ought to be spread with general uniformity over the star-sphere. Struve had thus demonstrated that the stars of the brighter orders are not spread uniformly within a spherical region. It was not clear whether they really occupy such a region, but are more richly strewn in parts of it than elsewhere, or whether the observed

diversity of apparent scattering might not be the effect of a real diversity of distribution in space. For example, the greater richness on the Milky Way zone might arise either from the stars within the spherical region corresponding to the ninth magnitude, being more richly gathered near a certain diametral section of that region, *or* it might arise from an excess of stars of greater real magnitude within the particular region of space occupied by the Milky Way itself. The latter interpretation, which actually accords best with what Sir W. Herschel had discovered, Struve tacitly rejected, in favor of the former. And now, having discovered that general uniformity of distribution does not prevail among the stars immediately around us, he deliberately adopted a method of interpretation, based on the assumed existence of special laws of uniformity. Nothing in the whole history of sidereal astronomy is more remarkable than the process of averaging adopted at this stage by Struve, at the very moment when—it would seem—he should have become satisfied that no process of averaging could be relied upon in dealing with the problem of the star-depths. He assumed first, that the law of distribution of the stars over the different hours of right ascension, for a zone thirty degrees wide, divided medially around by the equator, might be taken as fairly representing the distribution of stars in the plane of the equator. Next he assumed that the stars of each order of brightness might be supposed to lie at corresponding distances, assigning certain radial limits for stars between the first and third magnitudes, and so on down to the ninth. Thus he got the stars he had numbered, and which were *really* spread over a zone thirty degrees wide (more than one-fourth of the whole surface of the sphere), distributed over a circle, or thin disk, in the plane of the equator; and he regarded the disk thus obtained as one section of the sidereal system within the distance of the ninth magnitude stars! All the time he claimed for his work a perfect freedom from all hypothesis, though he was thus pushing the doctrine of averages (discredited at the very outset by his own work) to its extreme limits. No wonder that Encke, after carefully studying Struve's paper, rejected his conclusions as invalid, or that Encke, Forbes, and others, were able to show that Struve's theory, instead of being free from all hypothesis, could not be accepted until five hypotheses, not one of which was very probable, and two of which were most improbable, had been adopted.

In our own researches into this particular branch of astronomy, we started on the same line as Struve, but instead of diverging from that line after it had led to a certain distance and adopting the old

custom of inventing hypotheses, we have continued upon it until now, and begin to perceive that it must be pursued to a much greater distance before safe inferences can be drawn from the views obtained in this direction.

Struve had found that stars of the brighter orders are more numerous in certain large regions of the heavens than in others. This was done merely by counting the stars in the various "hours" on an equatorial zone, or rather by taking their numbers directly from an horary catalogue. It appeared to us that actually charting them would be preferable, because then the details of their distribution would become manifest. We began with stars down to the sixth magnitude, and having adopted a method of charting by which equal spaces on the heavens were represented by equal spaces in the chart, we could perceive the laws according to which the stars were spread.[1] Rich regions became not merely recognizable but visible. Although the richness or poverty of certain regions might thus be manifest, however, it seemed well to test the matter by numeration. Taking a certain large round region of the northern heavens, and an opposite similar region of the southern heavens, which seemed exceptionally rich, we counted the number of stars contained in each, and compared with the areas of each by the simple process of cutting out the areas and weighing the paper. We applied a like process to the Milky Way, and also to those dark gaps in the Milky Way whose poverty in lucid stars is one of the most significant facts in sidereal science. We obtained these numbers as measures of the relative richness.

| | Richness. |
|---|---|
| The whole Heavens | 5,500 |
| Northern Milky Way | 9,940 |
| " rich region | 9,050 |
| " poor region (rest of Northern heavens) | 2,567 |
| Gaps in the zone of the Milky Way | 1,240 |
| Southern poor region | 2,361 |
| " rich region | 13,126 |
| " Milky Way | 13,596 |

The indications of this table are very instructive. They show how peculiarly the stars of the brighter orders are spread over the heavens. Remembering that the bright back-ground of the Milky Way should tend to diminish the visibility of the fainter stars within

[1] One of the most mischievous faults of some of our old atlases was the enormous variation of scale in each map. Thus in the large maps published by the Society for Diffusing Useful Knowledge, equal areas of a map near the angles and near the center represent areas on the star-vault differing in the proportion of five to one. We can not wonder that peculiarities of stellar distribution fail to become noticeable in such maps.

the range of ordinary vision, we perceive that the excess of stars on the Milky Way, as indicated in the above table, must fall far short of the truth. Yet even as so shown it is sufficiently remarkable. Sir John Herschel, as stated in his "Southern Observations," believed at the time that there was no such excess even when stars down to the tenth magnitude were included. He says, "were there really among the infinite multitude of stars constituting the remote glories of the galaxy numerous individuals of extravagant size and brightness, as compared with the generality of these around them, so as to overcome the effect of distance and appear to us as large stars, the probability of their occurrence in any given region would increase with the total apparent density of stars in that region, and would result in a preponderance of considerable stars in the Milky Way, *beyond what the heavens really present.*" But we have seen that by the new method of charting, supplemented by the "scissors and balance" process, a very marked preponderance (which had been concealed by the comparative roughness of merely numerical processes applied to large regions), comes most unmistakably into recognition.

But we now made further advance within the star-depths, taking, instead of the range of the unaided eye, the scope of a telescope 2½ inches in diameter. This ranged almost precisely to the limits assigned by Sir J. Herschel in the above passage, as those within which there would *not* be any preponderance of stars on the Milky Way, if the stars are scattered pretty uniformly and are not greatly unequal in magnitude, while there would be a marked increase, if there are in the Milky Way "numerous individuals of extravagant size and brightness as compared with the generality of those around them." We charted down in an equal surface map, all the stars in the northern heavens brought into view with such a telescope, as was employed by Argeländer and six assistants, during seven years devoted to the work, or 324,000 stars in all. Each star was represented by a dot, copied carefully into its proper place, and so proportioned as to indicate the star's magnitude. When this had been done for the whole northern hemisphere, it became manifest without any application of the scissors and balance process (which would have been very difficult) that the stars of these leading orders do preponderate in the most marked manner upon the Milky Way. For actually, by the closeness of their congregation there as compared with their relative sparseness elsewhere, they formed a picture of the Milky Way almost precisely corresponding with its naked-eye aspect, thus showing, not only that those brighter stars are much richer in the Milky Way than else-

where, but that they almost entirely constitute the light of the Milky Way as we see it. Such a result as this shows at once that the old theories of general uniformity of stellar distribution and magnitude must be abandoned, precisely as Herschel had found in the case of the Milky Way, and Struve for the brighter orders of lucid stars. It also shows the advantage which may be expected from an application of the same method with powers gradually increasing until the range, perhaps, of the Herschel's gauging telescopes shall have been reached. Such researches within the star-depths would, in fact, combine the good qualities of both methods of star-gauging devised by the elder Herschel, and the results would not require doubtful hypotheses for their support, but only such an application of the laws of probability as all researches of the kind must be aided by. For instance, granting general uniformity of stellar distribution, a rich stellar field by Herschel's first method meant enormous extension of the star-system in the line of sight toward that rich region, and granting the law of general equality of star magnitudes, a field requiring great power for its complete resolution signified great remoteness. But when we combine together numerical gaugings over the whole of a large region (that is, without gaps), these gaugings being made with different telescopic powers, we need no such assumptions, but rather have the means of deciding whether such assumptions can be relied upon. If we find, for instance, that the several *rounded portions of the region* are rich in stars of any order, we infer that several *globular portions of space* are occupied by these stars—in other words, that there is not great extension in the direction of the line of sight. If we find that high powers, as well as lower powers, show one of these rounded regions rich in stars, that is, if we find that stars of very different orders of *apparent* brightness are richly strewn within that region, we infer that, within a globular portion of space, stars of very different orders of *real* magnitude are collected.

Another species of inference can be deduced from the indications of equal-surface charts. J. Herschel was the first to apply the principle of this fertile process to the nebulæ. Taking all the nebulæ, and plotting them down isographically, he found that, as his father had surmised, they gather richly around a part of the heavens, near the northern pole of the galactic zone; while around the southern pole, nebulæ, though not so closely gathered, are still strewn much more richly than elsewhere. He also noted that the zone of the Milky Way is almost entirely free from nebulæ, except the class of rich clusters. Cleveland Abbe obtained from J. Herschel's complete

list of nebulæ, the materials for a more exact chart. Herschel's chart had been formed from a catalogue of only 3812 nebulæ, Mr. Abbe's table dealt with 5079. He arranged these into the following classes: clusters, easily resolved globular clusters, resolvable globular clusters, resolvable nebulæ, and irresolving nebulæ. When these were charted as tabulated by Mr. Abbe, it was found that the clusters lie almost exclusively on the galactic zone, the easily resolvable globular clusters showed a decided tendency to aggregate there; the barely resolvable globular clusters were slightly richer on the galactic zone; and lastly, the nebulæ resolvable and irresolvable, were almost entirely wanting on the Milky Way region. This has been still more clearly shown in a chart by Mr. Sidney Waters, in which the nebulæ are not jotted down according to the numbers occupying particular spaces on the heavens, as they were in our charts, but each nebula separately in its proper place. We see that as regards the nebulæ, the law indicated is not a law of agreement, as in the cases of stellar distribution before considered, but a law of contrast, the stars being richly strewn where the nebulæ are scarce, and *vice versa*. But manifestly this special arrangement shows that the two classes belong to one and the same family, as clearly as the family of asteroids belongs to the planetary system, though where the major planets travel there are no asteroids, and *vice versa*.

The two principles of interpretation here indicated, applied to systematic series of gauges, with different telescopic powers, and extended over the whole of the star-sphere, promise to throw much light on the structure of the sidereal universe.

The motions taking place within the sidereal system afford another means of ascertaining the laws of stellar distribution. W. Herschel, from the study of the stellar motions known in his time, was led to the discovery that the sun, with its attendant family of planets, is traveling onward through space toward the region occupied by the constellation Hercules. Subsequent researches have confirmed this conclusion; and it has even been thought that the rate of the sun's motion can be assigned within not very wide limits of error. One particular discussion of the problem deserves special mention. It was suggested by Airy, and carried out by one of his assistants, at Greenwich, Mr. E. Dunkin. Taking nothing for granted as to the sun's motion, let this problem be dealt with—What rate and direction of motion must be assigned to the sun, to account for the greatest possible amount of stellar motion? The distances of the stars being assumed to correspond to their apparent brightness, it becomes pos-

sible to solve this problem by the well-known method of least squares. The result in this case was to indicate a motion towards the constellation Hercules, at the rate of about four miles per second. But it came out that the actual amount of stellar proper motion thus accounted for was exceedingly small. Now we showed by a very simple investigation of the general problem, that one-half the totality of stellar proper motion should be accounted for by the sun's motion. Since the proportion accounted for was so small, it followed that there must be some error in the only part of the process where error could be supposed to exist—viz., in the assumption on which the distances of the stars had been estimated. We shewed that if the existence of really small stars exceeding in number the really larger stars were assumed, the discrepancy would be partly removed; and we further shewed how the average proper motions of the stars of the varying orders of brightness, correspond with this assumption, the fainter orders not having by any means the relatively small average of proper motion, corresponding to the assumption that they are exceedingly remote. These views have since been very strikingly confirmed by the exact and original researches of Professor Safford, of Chicago, who finds that when the distances of the stars are inferred from their proper motions instead of being inferred from their brightness, the proportion of the stellar proper motions considered when the sun's motion is taken into account, is very much increased.

One theory depending on the stellar motion has excited a good deal of attention and must here be briefly noticed. Mädler was led to believe that if the whole system of the stars is circulating around a great central sun, all the stars lying nearly in the same direction as that sun would appear to move in the same direction—those between the sun and the center lagging or seeming to move in a direction contrary to that of the general circulation, those beyond appearing also, on account of their position, to move in a manner opposed to the general circulation. So that a community of proper motion in any part of the heavens would indicate that the central sun lies in that direction. Considering that the center must lie in a direction at right angles to the sun's line of motion, or must, in other words, lie on a great circle having as its poles the points toward which the sun is advancing and from which it is receding, while probably the central sun must lie near the plane of the Milky Way, Mädler was guided toward the constellation Taurus as probably containing the central sun. Finding in that constellation the expected community of proper motion, he expressed the opinion that the Pleiades mark the

center of the sidereal universe, and that Alcyone, the brightest star of the Pleiades is the central sun.

This theory, which was never regarded with much favor by astronomers, is shown to be manifestly untenable by our discovery that community of motion exists in many parts of the heavens; notably in the constellations Gemini, Leo, and Ursa Major. We have as yet no evidence that the structure of the universe requires for its completeness the existence of a great central sun or cluster.

Star-drift, however, is in itself a feature well worth carefully studying. Community of motion becomes a means of distinguishing stars really gathered into particular parts of the heavens, and so forming distinct systems. That this class of evidence can be trusted seems fairly shown by the test to which we subjected the theory of star-drift, in venturing to predict that whenever the drifting stars of Ursa Major were studied by the spectroscopic method of measuring motions of recession and approach, they would be found to be either all receding or all approaching at a common rate. Dr. Huggins found that they were all receding from the sun at the rate of seventeen miles per second.

The general conclusion to which we seem led by what has been thus far done toward determining the structure of the universe, seems to us not incorrectly indicated in the statement with which we close the article on Astronomy in the Encyclopedia Britannica: "The sidereal system is altogether more complicated and more varied in structure than has hitherto been supposed; in the same region of the stellar depths coexist stars of many orders of real magnitude; all orders of nebulæ, gaseous or stellar, planetary, ring-formed, elliptical, and spiral, exist within the limits of the galaxy; and lastly, the whole system is *alive* with movements, the laws of which may one day be recognized, though at present they appear too complex to be understood.'

# BOOK REVIEWS.

## VICTORIAN POETS.[1]

THIS important work must not be classed with the countless volumes of critical essays and lectures, which fall every year from the press — the ephemeral gossip about literature, which, even when accomplished scholars bestow it upon us, seems meant for the railroad car and the watering place, and rarely survives the season. Nor is it a collection of strained efforts to put hasty and superficial judgments into such brilliant language that they shall sound like final wisdom. These two classes include most of what American poets have written about English poetry. But Mr. Stedman's book, in style and manner alike, is the evident fruit of long and faithful study, by a mind truly and nobly critical; that is, with a catholic love for all excellence, with zeal for no party but that of culture, and with jealousy for no standard but that of art. It is a survey of the poetical writings of Tennyson, and his contemporaries in England, with an estimate of their value, as measured one by the other, and by the great classics of the language. In manner, entertaining enough for the afternoon lounger, in matter, it is so thorough and instructive, that it bears well the student's repeated perusal, and soon leads him to suspect that his own critical convictions may need revision, if he finds them widely at variance with his author's. Thus, while we can not adopt all of Mr. Stedman's judgments, we must admit that every one, seriously urged by him, deserves to be candidly weighed. We should wish, perhaps, to dispute some of the canons by which his verdicts are framed; believing, for instance, that the moral element in poetry, deserves more prominence than he has given it, and that the moral superiority of the poetry of the last generation, to that of Queen Anne's day, is quite sufficient to insure it against the forgetfulness into which the latter has fallen; believing, also, that Mr. Stedman is, in some cases, influenced in his estimates by his view of what a poet might have done, rather than by what he has done, awarding to capacity, honor which belongs only to achievement. If he falls in any degree short of grasping Tennyson's greatness, it

[1] "Victorian Poets," by Edmund Clarence Stedman. Boston: J. R. Osgood & Company. 1876.

results, we think, from the former error; if he gives Swinburne too much praise, it is because of the latter. But, as he gives his reasons for every opinion, and throws the reader upon his own responsibility in accepting or rejecting it, the latter, if he can not accept the teaching as authority, is at least stimulated to dissent, with intelligence.

Mr. Stedman's work is to be regarded as a whole; no extracts could do it justice. Two chapters, indeed, those on Walter Savage Landor, and on Tennyson and Theocritus, are remarkable, among others, for their originality and maturity, and would alone give a permanent value to the volume. But the entire work claims the attention of the literary world, as the most symmetrical and useful guide in existence to the study of the English poetry of our own generation, and as one of the very best aids, now accessible to the general reader, in forming a healthy taste in letters. In its own department of criticism, it is the most important book yet written in America.

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## LETTERS AND SOCIAL AIMS.[1]

THE publication of a book from Mr. Emerson's pen is a notable literary event. For some forty years he has been a prominent writer, and may be ranked, with Irving, Longfellow and Hawthorne, among those who have done most to make American literature honored and influential, at home and abroad. He has been called our best prose writer. He has certainly lived to see the elegant style of Irving and Prescott superseded by the more sinewy and masculine grasp of words which mark his own pages, and he has largely formed the style of the authors, and magazine and newspaper writers, of the present day. His books have had great influence upon the leaders of cultured thought. The mysticism of his earlier essays, if not the severely simple directness of his thought, repelled the larger public; but a great number of forcible writers and speakers, have studied Emerson as they have studied Carlyle, and his literary tone has been caught by those who use words for expressing vigorous and incisive thought. Wendell Phillips has the same power of putting large ideas into the simplest words, and of using the best word for the idea. Wherever one is careless as to the expression of his thought, he cheapens his work. Theodore Parker was thus careless, and his writings are comparatively unread. Mr. Emerson has learned, from the masters of human speech, how to express truth, not only relatively to some special event, but with the simplicity and directness which carries his

[1] "Letters and Social Aims." By Ralph Waldo Emerson. Boston: James R. Osgood & Co. 16mo., pp. 314. $2.

thought into every language. His position is unique. He has constantly grown in his power to apprehend and speak the fact, or vital truth, and this has been the measure of his increasing hold upon those who read. His writing is the outcome of his own thought. He has attempted nothing outside the line of his peculiar genius. Montaigne did not cling more tenaciously to the essay, than does our American Plato; and yet Mr. Emerson is the most confiding, personal, and truthful of men. He gives us the result of his mental studies through the whole range of human life, and whatever he writes is the photograph of himself.

His early standard was high. He struck the essay from the first. His "Nature" is not his best work, but it has, with all its mysticism, the same richness and surprise of thought, which marks his latest volume. He wrote out his own convictions, and this essay is in some respects the key to every thing which he has since produced. He sounded a new note in our literature, at a time when the Unitarian movement in New England had broken up the dead level of religious orthodoxy; and his religious position, as a Unitarian minister who had virtually abandoned Christianity, caused him to be misunderstood by those who should have been the first to detect and use the new literary force which he brought into current thought. His address before the Harvard Divinity School in 1838, was a tide-mark in the religious world and in his own experience. He was a brave man, and dared to speak his thought. He burst his shackles. He missed, to the regret of all, the sunshine of the Christian faith, but in the essay on "Immortality" in "Letters and Social Aims," he has come surprisingly near to sentiments which are held by all religious men. What deserves comment, is his honesty and courage. Few writers, of any age, have given stronger expression to fundamental religious truth; and the mellowed tone of the book under notice, is remarked by every one, as if the crudeness of other years, in some lines of religious thought, had passed away amid the stronger intimations of immortality which come with ripened age. Every man must have his independent expression of the inward and spiritual truths, and we are indebted to Mr. Emerson for the singular fidelity with which he has spoken the truth, as it has been revealed to himself. Such doubts as he may cast upon some views of truth and doctrine, are not the attacks of an enemy, but rather the honest regrets of one who can not believe. The earthly element is subordinated to the spiritual, and if you are not drawn to a personal God, or to a living Christ, you are made to feel the sacredness of existence, and the greatness and worth of the soul. His comments upon life; its conduct, its mystery, its manifoldness, its richness, its beauty, its detail and its

greatness; and the universal experience of man under all circumstances and conditions, are remarkable. His truthful and kindly observation, has the response, "That is so," from nearly every reader, and no American author has spoken, so well and so often, the thought of both the superior, and the average, man. His writings have grown better, as wine mellows with age, in the advancing years, in just this department of observation; the flavor is richer; the tone more genial; the truth more exactly stated. It is safe to say that no volume in the range of pure literature, in which class all Mr. Emerson's writings fall, has been published in this country for some years, which has higher value than "Letters and Social Aims." Its bulk is slight, but its fidelity to mental, personal, and spiritual facts, is unusual. It is free from mysticism; it goes to the essential truth; it ranges up and down through human experience; and yet there is scarcely a repetition, and every sentence might be expanded into a separate essay. Compare him with Landor, and he is the closer thinker; with Helps, and he wins in force of expression; with Carlyle, and he keeps nearer to the truth. Judge Mr. Emerson's writings by any legitimate standard, and they rise at once to a comparison with those books which stand at the head of a nation's literature, in any language. In the present volume, the essays on "Social Aims," "Progress of Culture," "Eloquence," and "Immortality," reach up to this high level. The treatment is at once absolute, or universal, and yet with constant reference to special facts. It thus gives the expression of the whole truth—not going beyond the human interest, not falling short of the common understanding, suggestive at every point, and reaching out to what is felt, rather than expressed. It is this capacity to feel after truth, to speak what all men think, but can not express, to reach further into the outer darkness, or nearer the central light, than other men, in the things of mortal life—which makes Mr. Emerson's essays so valuable. His "Representative Men" interpreted truths of character in a spiritual order, and brought out the truths of the soul. His "English Traits" is still the best preparation for a visit to England. His "Conduct of Life" is a key to the formation of personal character. His volumes of general essays, have penetrated to the heart of English literature. There is nothing poor, nothing weak, nothing half-done in this list. All have the finish of the scholar, and the expression of the man who knows most on the given subject.

There are two elements in Mr. Emerson's writings which remain to be noticed—his literary culture, and his style. Setting aside his instructions on the conduct of life, and his singular capacity for detecting personal thought, his pages are illustrated by constant

reference to books, and the sayings and doings of people of mark. He rivals Macaulay in quotation and reference. The spoils of all ages garnish his speech, and lend their aid in the expression of his thought. Some of his essays, as those on Goethe, Culture, Books, Eloquence, Clubs, Literary Ethics, Poetry, Imagination, and Persian Poetry, are among our best guides to English literature; and we are constantly introduced to authors and facts, which add a new charm to letters. He has a fine feeling for a striking remark, or a suggestive fact, and never quotes another without making the imported words the vehicle of his own ideas. The literary stimulus of his writings, is great. It is this that makes them so useful in their influence upon personal character. They bring us into contact with the best things which any man has uttered, and yet we never lose the guidance of a man of genius. Mr. Emerson is no Boswell, or cicerone. He does not keep a curiosity shop, or museum. He is rather the universal scholar, because he searches for universal facts; and yet he is the man first, and the scholar afterward. No amount of learning overlays his original thought. Almost no writer has remained himself, who has foraged so much. Walter Savage Landor, is the only modern writer who has approached him, in this singular power to keep his identity and freshness, while hunting everywhere for words and facts.

His style has been already indicated. It is simple, plain, concise; hugs a fact; is strong in the sentence; breaks into poetry; has immense reserve power, and is not to be imitated. Simply for the teaching of literary expression, Mr. Emerson's writings are worth the most careful study, and his latest volume shows no falling off in his singular power to make the simplest words bear the largest ideas and the most vigorous thought.

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## THE CIVIL WAR IN AMERICA.[1]

Judging from the handsome and interesting volume before us, it is not too much to say that the "History of the Civil War," by the Comte de Paris, is by far the best work which has yet been given to the world in connection with the subject of which it treats. Improving the opportunity which his service with McClellan as a staff officer afforded him, and bringing to his assistance an extended and varied scholarship, he has written, as a foreigner, with an intelligence and breadth of view scarcely to be expected, at this date,

[1] "History of the Civil War in America." By the Comte de Paris. Translated, with the Approval of the Author, by Louis F. Tassistro. Edited by Henry Coppée, LL. D. Volume I. pp 640. Philadelphia: Jos. H. Coates & Co. 1875.

in an American writer. Although ardently in favor of the national cause, and hating slavery with all the fervor of an abolitionist, he challenges the admiration of even the Southerners, by the fair and philosophical spirit in which he describes events, and sets forth their relations to each other. In his preface he modestly but truthfully says: "If I have been obliged to judge and to censure, I have done so without any personal or partial feeling against any one, with a sincere respect for truth, and a keen sense of the responsibility I have assumed." This is seen in every page of his work; but what is still more gratifying and instructive to the American reader, and especially to the military reader, is the critical commentary, illustrating his narrative of battles and campaigns. He points out, with rare perspicacity, the mistakes of both parties to the conflict, whether they relate to tactics, strategy, organization or general administration, keeping always in view the peculiarities of the theater of war, as well as the characteristic differences of the Northern and Southern armies. In this respect, his work must take high rank among the best military histories of modern times. He has done for the military institutions and aptitudes of the American people, what de Tocqueville has done for their political institutions; and while it is true that he has written in a more liberal and hopeful spirit than the latter, this is perhaps due, in some degree, to the fact that he had seen our institutions survive a struggle such as the world has rarely witnessed. This is none the less gratifying, because he attributes it to the inherent virtue of the people and their leaders, as much as, or even more than, to the strength of their system of government. Another noticeable feature of his work, is the discrimination with which he notes the leading characteristics of the various commanders who took part in the events which he chronicles. It must not be supposed that he attempts any extended delineation of personal character, and yet it is true that he has succeeded in giving the world a fair idea of what manner of men they were, who led the opposing hosts during the most sanguinary civil war of all history. It must be remarked, also, that with but a few exceptions, his estimate of men seems to have been based upon a correct understanding of their real character, rather than upon an inference of their worth, drawn from their deeds, or from the apparent place filled by them in the popular mind. In but few instances has he fallen into error, as in the case of Kilpatrick, where it is clear that he has been misled by the newspapers of the day, and has assigned to that officer a higher place in point of services and character than has been accorded him by those who knew him better. In the case of the Bufords he has, inadvertently, confounded one brother, of rare merit and great soldierly promise, but whose

career was cut short by death, with another, of more moderate talents but longer life. Withal, the volume before us, we feel assured, will do much to elevate American Generals, and American soldiers, to their true place in the estimation of the world, and still more, to show the American people the inestimable value they should put upon the National Academies at West Point and Annapolis. Having had ample opportunity for becoming thoroughly acquainted with the military and naval establishments of all the great European powers, his commendation of the officers of our regular army and navy, ought to be peculiarly gratifying to every American reader. He gives a complete account of the growth of our military system, from the days of Wolfe and Montcalm, down to the present time, showing the effect of the early French and Indian wars, as well as of the revolution, upon our volunteers, and describing the growth of our regular army from the revolutionary period, through the war of 1812, and the war with Mexico, down to the outbreak of the rebellion. He points out the strength, as well as the weakness, and shows the economy, as well as the extravagance, of our system, or rather, want of system. We specially commend that part of the author's work which refers to the history of our army and the functions of the various staff corps, to the members of the present Congress, not doubting that a careful study thereof, will give them a higher appreciation of the value of a body of trained officers; and of the advantages of a flexible organization, capable of contraction in time of peace, and expansion in time of war, according to the needs of the government, than they can obtain from any other publication connected with American history.

Still another feature of peculiar excellence in this work, is the careful and exact description of every battle-field, as well as of every zone of military operation. The amount and accuracy of the topographical and geographical information which it contains, as much as, if not more than, anything else, shows how industriously and conscientiously the author has studied his subject, as well as how fully he appreciated the necessity of keeping the information thus obtained constantly before his readers, in order that they may understand the essential difference between warfare in America, and warfare in Europe.

The scope of the work is broad and comprehensive; it includes the history, not only of the war itself, but of the events which led to the war, together with such a description of our people and institutions, as had effect, directly, or indirectly, upon the action of the different States, or upon the character and duration of the struggle. Speaking of the course pursued by the border slave States, he says: "But

these States struggled in vain to resist the example of their associates already engaged in rebellion; linked to their fortunes by that terrible bond of complicity which in politics as in private life, places every malefactor at the mercy of the most daring, they were soon or late, drawn into the vortex." He shows at length, the influence of slavery in bringing about the terrible struggle; and that he learned at an early day, what it cost the "poor white folks" of the South much suffering and many thousands of lives to learn; but which having learned they feelingly expressed by the saying: "This is the rich man's war, but the poor man's fight." The limit of this paper forbids us to follow the author through all of the events he describes, or to do more than make a brief allusion to the subjects which he discusses. His descriptions of the rivers, railways, and telegraph of the country, and their influence upon the cause of the war, as well as his account of the military material used by the combatants, are exceedingly clear and instructive. He points out the superior advantages of rivers as lines of operation and supply, and strikingly summarizes his conclusions, as follows: "We shall always find, therefore, that whenever the Federals were supported by a river, their progress was certain and their conquests decisive; while the successes they obtained by following a simple line of railway, were always precarious." Speaking of the battle of Bull Run, which he describes in great detail, he says: "It was a misfortune, not a disgrace, to the Federal arms," and that "the rout, or in other words the panic—in the midst of which the enemy picked up most of his trophies, was one of those accidents to which even victorious troops are sometimes liable, and against which old troops are not always able to guard." His hearty tributes to the ability, courage, and patriotism of Grant, Sherman, Thomas, Sheridan, and many others, are in good taste, and will doubtless have great influence in securing for those generals a much wider recognition from the world, than they could hope for through the agency of any American author, no matter how ably he might describe their services and peculiarities. He places Farragut at the head of the "naval captains of our times"; and praises Secretary Welles, and his Assistant-secretary Fox, in the warmest terms, for the extraordinary rapidity with which they created a navy. And yet he does not fail to censure where he thinks censure is due. He criticises Buell, Rosecrans, Halleck, Sherman, and Fremont, on the Federal side; and Beauregard, Forrest, Morgan, and others, on the Confederate, side; but in all cases, his criticisms are moderate, and apparently unprejudiced.

The most interesting and perhaps the most elaborate chapter in the volume is that relating to the battle of Shiloh. It supports the

view of that battle taken by the INTERNATIONAL REVIEW, in an article entitled "Sherman and his Memoirs." He admits that the position occupied by the national troops was "extremely well chosen," and shows that the censure which was at one time visited upon Grant for landing on that side of the river, "was unjust"; but he does not hesitate to declare that, "The surprise of the Federals was complete and unquestionable, and their commanders sought in vain to excuse themselves." He condemns them for not placing their troops in proper order to resist attack, points out that they should have fortified their lines, and made frequent and more distant reconnoissances, so that it would have been impossible for an army of 40,000 men "to lie in ambush" close to their camps, without discovery. After pointing out the defective arrangement of the troops, he says:

"But the fault of these arrangements was a small matter compared with the neglect of all the precautions with which the Federal army should have surrounded itself. Not a shovelful of earth had been thrown up . . . . the tall trees of the forest . . . . had not even been cut down to construct abattis and guard against unforeseen attacks. The very position of the camps exposed them to all kind of surprises. In short the surrounding country had not been reconnoitered. The cavalry was assembled near the river, and for three weeks had only made a single reconnoissance, of no account whatever." And again: "Generals and soldiers were alike novices. Grant was not accustomed to handling a large army. Sherman, who displayed so much foresight in his subsequent campaigns, did not appear to possess as yet that vigilance which became one of his prominent military qualities."

These expressions have peculiar weight in connection with the discussions which have lately arisen in reference to "Sherman's Memoirs." He speaks of the battle in Hampton Roads, between the Monitor and Merrimac, as, "one of the most memorable events in modern warfare." The first volume of the translation, and the second of the original work, end with an account of this singular battle, and its results, upon naval architecture and naval warfare.

In concluding this notice, we can not refrain from expressing our regret that the translation was not undertaken by General William F. (Baldy) Smith, who at one time contemplated it. Not even the most distinguished writer could hope to do full justice to such a work, without an extended knowledge of the military art, as well as of the military events, of which it treats. We are credibly informed that while the translation was entrusted to Mr. Tassistro, by the Comte de Paris himself, or at least with his full concurrence, Professor Coppée's connection with the work, as editor, was entirely without the knowledge or consent of the author. Why he was employed, or what useful office he performed in connection with the work, is difficult to perceive. He appears to have done nothing more than

to put his name upon the title-page, and to write a short preface explaining why he did not translate measurements, into miles, yards, feet and inches, instead of leaving them in leagues, kilometers, meters and centimeters. It is true he added a few foot-notes, of doubtful utility and accuracy; but if the translation had been more thorough, and more in accordance with the requirements of a correct English style, the reader could have well dispensed with the editor's notes.

The publishers have done their duty fully and most acceptably by this valuable work. In typography and paper, it is fully equal to the original, while such of the maps as are used have been creditably reproduced. The manner in which they are bound in the book,—so as to open clear of the text and permit constant reference,—is particularly advantageous to the reader.

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## MANUAL OF THE RAILROADS.[1]

THE present is the eighth annual volume of this publication, and it is inferior to no preceding edition in the amount of statistical information it contains respecting each particular railroad corporation in the United States. It appears at a time when considerable interest attaches to the financial condition of our railways, owing to the period of severe depression through which the country has been passing since the crisis of 1873, and which has tended to materially reduce the earnings of all.

The year 1874 was the first for a decade and a half in which the aggregate gross earnings of our railways failed to show an increase over those for the preceding one. The previous great depression in railway property occurred in 1857–'58, when the railway system, which has since extended itself so rapidly, was only partially completed, and the railways had consequently for the most part only a local traffic; but now—with their length of seventy thousand miles —they form a vast and united network, covering the whole populated area of the country, and contributing to each other's business. The average earnings of the population per capita are five-fold more than they were in 1858, and as the population is increasing at the rate of about a million a year, the permanent welfare and further extension of our railway system is assured, whatever adverse influences it may temporarily encounter.

[1] "Manual of the Railroads of the United States for 1875." By Henry V. Poor. New York: H. V. & H. W. Poor. 1875.

The fact that the aggregate earnings of the railways, in 1873, were the largest for any one year in their history, shows the steady growth of their prosperity with that of the country at large, and the indications now are that the worst of the depression following the late crisis has been experienced, and that future returns of earnings will reflect improvement. The earnings per mile of the railways collectively have more than doubled within the last ten years; the productive capacity of the people, it is estimated, has been also doubled, owing to the introduction of new labor-saving machinery and the reduced cost and increased facilities of transportation; and their aggregate earnings are four times as great.

It is as remarkable as it is encouraging, that considering the prevailing widespread depression in all departments of trade, their gross earnings—five hundred and twenty millions—should have fallen off so little—about six millions—in 1874; that their net earnings actually showed a slight increase over those of the previous year, owing to economy in management and the reduced cost of labor and materials, while the tonnage was about equal for the two years. Notwithstanding this exhibit, however, numerous defaults have been made, both in the payment of interest and dividends, the causes of which are too complex for elucidation in the limited space at our disposal, and these superadded to the effects of the collapse of the railway building bubble in 1873, will prevent new lines from being constructed, except where urgently needed, for a long time to come. During the five years ending with 1873, no less than 28,428 miles of new railway were built, a total far in excess of the real requirements of the population; and not a few of the enterprises begun, remain, like the Northern Pacific, uncompleted, and a prey to financial embarrassments and litigation.

The reckless manner in which the directors of railway corporations increased their capital and stock, for stock-jobbing purposes, during the highly speculative period following the war issues of paper money, as a matter of course correspondingly diminished their ability to pay dividends; and the result is that some of them, Lake Shore and Michigan Southern prominent among the number, have been compelled, first to reduce, and then to suspend dividends altogether.

The unanticipated doubling of Hudson River stock, in 1867;[1] the enormous scrip dividends of eighty per cent. suddenly declared by the New York Central and Hudson, at the time of the consolidation in December, 1868; the successive unexpected issues of new Chicago and Rock Island stock, the frequent "waterings" of Reading and Fort

[1] Fifty per cent. of the increase, however, being required from the stockholders in cash.

Wayne, and in a minor degree, of Cleveland and Pittsburg, Milwaukee and St. Paul, and Chicago and North-western, are still as well remembered in Wall street, as the more notorious periodical flooding of the market with new Erie shares, when the old Fisk and Gould "ring" held control of that unfortunate company, which is now struggling in the hands of a receiver. Nor was the wholesale dilution of stocks confined to railways, for Pacific Mail stock rose leap by leap from four to twenty millions, one stock dividend of fifty per cent. having been declared expressly for the benefit of the Pacific Mail ring, composed chiefly of its own directors, who were then large holders of the stock, and engaged in a movement to advance its price.

The secresy with which these issues of new stock were made, gave those inside an immense advantage over those outside, and the former were really putting money into their own pockets by their official proceedings; for it may be assumed as certain that their position on the stock market was such as to enable them to profit largely by their own acts, especially as most of them were known to be habitual speculators.

It has been the misfortune of too many railway corporations to be managed in Wall street, for the benefit of speculative directors, who sought their position for purely selfish ends, entirely inimical to the welfare of the *bona fide* stockholders. These men have treated the railways over which they acquired control by stock operations in Wall street, as if they were their own private property, handling their resources, and making their condition appear prosperous, or the reverse, so as to suit their own sinister purposes; and they have been in the habit of shaping their contracts and reports to this end. If their stocks were low in Wall Street, and the outlook promising for a "bull" movement, they bought them largely, sometimes using their companies' money for the purpose; they reduced expenditures, and perhaps declared dividends they had previously announced would be "passed," and reaped their reward in a sharp rise, which they encouraged as far as possible; they then sold out, while representing everything connected with their companies as "*couleur de rose.*" In like manner, after having disposed of their stocks, it was an easy matter for them to sell "short" and then proceed to make repairs and improvements, or to build extensions, at extravagant rates—they being, *sub rosa*, the real contractors for the work, deriving large profits therefrom—and thus to drain the companies concerned, of cash resources, so as to involve a large increase in their floating debts, and perhaps a suspension of customary dividends. Falsely discouraging reports of light earnings, quite as much in keeping with these

discreditable tactics as too flattering ones in the opposite case, would follow. All this to depress their stocks once more.

This gross corruption in railway management has been gradually waning under the light of increased publicity, and since the crisis it has been much less conspicuous than formerly in Wall street, owing to the comparative dullness of speculation; but it is still a great evil calling for relentless exposure. In the course of time, however, the desirable stocks representing the great highways of traffic will be absorbed by investors, and in proportion as they disappear from Wall street the incentives to mismanagement will be diminished, as it will be impossible to gain control of them by mere stock-jobbing manipulations. Consequently a better class of men will be elected to fill boards of direction—men who have a real stake in the property they represent—and as the railways grow in wealth and importance with the progress of the country, their interests will be more jealously guarded than heretofore, for the tendency of legislation is toward the correction of flagrant abuses, except where bribery and corruption still conspire to clog the wheels of reform.

In illustration of this we may mention that the railways whose stocks were once foot-balls of speculation, but which have entirely passed into the hands of investors, are now much more honestly managed than they were before this change took place. It is satisfactory to reflect that railway property has suffered so little, on the whole, in comparison with some other important industries, from the ordeal which the country has undergone, and from which it cannot even yet be said to have emerged.

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## MONEY AND THE MECHANISM OF EXCHANGE.[1]

IN these days of endless discussion of monetary questions, it is no small merit to have added anything permanently valuable to the literature of the subject; but this merit must certainly be conceded to Professor Jevons. In the narrow compass of 350 duodecimo pages, almost every material fact, and controverted question, relating to money and the circulating medium, is briefly but clearly stated, so that one familiar with the subject, finds here a *résumé* of all his previous reading, and one not familiar with it, may safely take the book as a condensed summary of the best conclusions in monetary science. The most

[1] "Money and the Mechanism of Exchange." By W. Stanley Jevons, M. A., F. R. S. Professor of Logic and Political Economy in the Owens College, Manchester. D. Appleton & Co. 1875, pp. 349, 12mo.

original part of the volume is the first half, which treats of money in its material forms. The history of these is traced from the rude and cumbrous instruments of exchange resorted to in the infancy of civilization, down to the newest and most perfect symbols, which science, aided by mechanical and artistic skill, has furnished to the commerce of the world. No English book contains so much valuable information respecting the coinage, and it has the merit of bringing us down to the latest dates, embracing the substantial facts elicited by the International Monetary Conventions of 1865 and 1867, and the French Commission of 1870, with the recent action of the German Government in remodeling and unifying its gold currency. Roswag's large book, "*Les Métaux Precieux*," published in 1865, is more learned and comprehensive, and the Report on the Precious Metals of our American Dr. Blake, one of the Commissioners to the French Exposition, is more full of facts relating to the production and distribution of the new gold, a subject with which Professor Jevons does not attempt to deal in this volume, having largely written upon it in previous publications. The knowledge of coins and coinage which he acquired while Director of the Mint in Sydney, at the period of the greatest Australian gold production, makes him, without doubt, the first of living authorities on these subjects. Since his return to England, about ten years ago, he has been a constant contributor to the press on economical subjects. We believe that his earliest pamphlet, on the "Fall in the Value of Gold," was published while he was still at Sydney. In it he proved by a learned array of facts, that the actual fall, as indicated by the increase of prices, was only some fifteen per cent; and that the great and permanent disturbance of prices anticipated by Charlier, had not taken place. Later articles published by him in the *Economist* went to strengthen this conclusion. Many of his papers have been read before the Statistical Society of London, and published in its Journal. Among these was a valuable essay published in 1865, with illustrative tables, on the "Variation of Prices and the Value of the Currency since 1782." One not less valuable and interesting, presented the results of an ingenious experiment which he had instituted, to ascertain the volume and condition of the metallic circulation of Great Britain. For this purpose, he caused a complete "census" to be taken of a large number of sovereigns and half-sovereigns, at different places in the United Kingdom—London, Manchester, the agricultural counties, Ireland, etc. From this it appeared that gold coins retained their legal weight only about eighteen years; that the newest and best of them circulate in London and other great cities where they are frequently tested, and that the worn and light pieces take refuge,

and permanently remain, in Ireland, and in the agricultural counties. The melting pot absorbs many of the best, only those of full weight being profitably convertible into bullion. This is a heavy tax on the newly issued coinage of all countries, and it presents a strong argument for the adoption of an international money. It is said (though the fact is not mentioned by Professor Jevons), that the German Government has already suffered in this way, while putting out its new gold coins.

In connection with the unavoidable deterioration of coins, Professor Jevons states the familiar principle, as applicable not only to them but to every species of money; "that bad money drives good money out of circulation, but that good money can not drive out bad money." In its practical bearing this is a truth of the highest importance, proving as it does, that, whatever the legal sanction, good and bad money cannot circulate together, since the instincts, both of economy and selfishness, will inevitably choose the cheapest medium by which debts can be paid, and purchases effected. Our own recent experience shows how an inconvertible paper currency drives gold and silver not only out of circulation, but out of the country; while that of France, since the late war, demonstrates that a trifling premium of one per cent. has been enough, in that country, with all its traditions and prejudices in favor of metallic money, to withdraw it wholly from popular use. In the light of these familiar facts, the attempt of a late Secretary of the Treasury to resume payments in silver, while at a premium of five per cent., would be amusing if it were not humiliating. Professor Jevons places in a strong light the advantages of an International money. He puts in the foreground "the immense good which would arise from the facility in understanding all statements of accounts, prices, and statistics, when expressed in terms of a uniform measure of value." The importance of this view of the subject has never been sufficiently appreciated. The popular ignorance, in all countries, of what is going on among other nations, in channels parallel to their own, is due as much to a want of familiarity with their weights, measures, coins and money of account, as to the strangeness of their language; and both are serious obstacles to the progress of civilization.

In the selection of a monetary unit, our author gives a leading place to the claims of the American dollar, as decimally divided, and in the most convenient form. "It corresponds," he says, "to the coins which have, for two or three centuries, been most widely circulated and treated as units of account, so that there is much weight of experience in its favor. . . But, above all, it is firmly adopted as the money of a nation which, as far as human wisdom can penetrate

the future, is destined to be the most numerous, rich and powerful in the world. That nation which has arisen from the best stock of England, has absorbed much of the best blood of other European nations, and has inherited the richest continent in the world, must have an importance in coming times, of which even Americans are barely conscious."

In connection with the dollar, Professor Jevons makes a most important practical suggestion, namely, that prior to the resumption of specie payments in the United States, the weight of the gold dollar, now 25.8 grains, shall be reduced to that of the French five franc piece of gold, 24.89 grains, and worth 96½ cents of our money. This would bring our metallic currency into accord with that of France, Belgium, Switzerland, and Italy, as established by the convention of 1865, and might lead to the adhesion of Great Britain, Austria, and Spain as well as of Mexico and the South American States. To avoid any breach of faith towards the public and other creditors, it should be enacted, that in the payment of preëxisting gold debts, 103½ dollars of the new money should be equal to 100 dollars of the old. Cannot this suggestion be adopted during the present session of Congress, or failing such a consummation, can not the President initiate the establishment of an International Commission to sit during the Centennial Exhibition, and to report to Congress at the next session? We believe that all European nations, unless it be Germany and Sweden, which have just refashioned their coinage on a basis inconsistent with the proposed unit, would coöperate in the movement, and there could be no nobler fruit of our Centennial year, than to achieve such a result as the Commission would have in view.

Mr. Jevon's valuable book ought to be read by every statesman, legislator, and journalist of the United States, who undertakes to discuss the monetary problems of the time; and supplemented by the instructions of a competent professor, it would make an admirable college text-book.

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## MEMOIRS OF REV. CHARLES G. FINNEY.[1]

This book contains the recollections of his own career, by one of the most remarkable men of the last generation. Very few men, in any profession, have wrought with such impassioned energy, or made themselves felt so widely, as did Mr. Finney, particularly in the earlier portion of his public life. With his great rough nature, and

[1] "Memoirs of Rev. Charles G. Finney. Written by himself." New York: A. S. Barnes & Co. 1876.

indomitable will, he then seemed like a tremendous engine whose working force nothing could resist.

He was born in Connecticut in 1792; but was carried by his parents to Central New York, when that was almost a wilderness, and grew up there with extremely limited advantages of education. Of the means of religious education, indeed, he was almost wholly destitute through all his early years. At twenty he went back to New England and attended a high school for a time, with intervals of teaching; after which, in 1818, he returned to New York, and commenced the study of the law, at Adams, in Jefferson county. By references to the Scriptures which he found in his law books, he was led to purchase a Bible and read it carefully; and before he had completed his legal studies, from a skeptic, he became a decided Christian, and at once entered on that course of evangelistic labor, which through many subsequent years, made his name so widely known, in his own country and abroad.

In this autobiography, Mr. Finney relates, with a great number of illustrations, and often thrilling facts, the history of his extended life. One sees and hears the man as he was, in every sentence. Strong physically, strong intellectually, strong emotionally to a degree well nigh terrible, he exercised, almost from the first, a power over those whom he addressed such as has seldom been exhibited; and the results, as detailed by him in his own vigorous language, and with the frankness and simplicity of one who writes from a love of truth, form a narrative of intensest interest. Few men have been more severely censured than he, at some periods of his life, and few have been more heartily loved and honored. The discussion of his peculiar religious views and methods of evangelism, of course does not fall within the scope of this review. In the periodicals distinctively devoted to such themes, it will doubtless find a place; and it will not be strange if some of his sayings and doings should become the subject of earnest criticism. There has, however, apparently been a decided change in the public feeling toward Mr. Finney in his later years, which may be attributed, in part, perhaps, to the mellowing influence exerted upon him by age and experience; and, in part, to a better understanding of what were his opinions and aims; and to some change, also, in the prevailing views as to the questions involved. In his last years, which were peaceful, he was regarded with very general respect. To the institution at Oberlin his name has been a power, and his memory will long be sacredly cherished in connection with it.

We can assure our readers that if they once take the volume in hand they will not fail to read it to the end. No work of fiction

could well take a stronger hold on the attention. To those who knew the man personally, in his prime, and have felt his peculiar power, the reading of these reminiscences will be almost like seeing and hearing him anew; and the work can hardly fail to be sought and studied with profit, by thousands who knew him only as a notable public man.

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# CONTEMPORARY LITERATURE, ART, AND SCIENCE.

## RECENT ENGLISH BOOKS.

THE PHILOSOPHY OF HISTORY.[1]—The subject of this book is a difficult but profoundly interesting one. It is only at a comparatively recent date that a Philosophy of History has been formally attempted, or, indeed, even recognized as possible. In commencing his book, Professor Flint proposed to himself, he tells us, "to pass in review the more famous of the many attempts which have been made, within the last century and a half, to discover the laws of order which regulate human affairs, and to indicate what appear to be their chief merits and defects." In the present volume, he confines himself to France and Germany, leaving to a future publication what relates to Italy and England.

The method adopted in the treatment of the subject, is well chosen. After an able general view of the field to be surveyed, and an indication of the line and aim of the discussion, Professor Flint traces, from a remote period, through a succession of eminent writers, the rise, and gradual development, of the idea of progress in the human race considered as a whole. Without this idea, the writer and the reader of history, could see before them only a vast mass of disconnected facts apparently determined by no law;—a confused aggregation of events, in which individuals and races, in their ever-changing fortunes; states and kingdoms in their wars and revolutions, their alternations of growth and decay, of civilization and barbarism; appear as if forming a hopeless domain of chance. The early historians, Hebrew, Greek and Latin alike, wrote without broad and comprehensive views of the true scope and significance of history. They described what had actually taken place; but as to the relation of one event, or series of events, to another, why they were as they were, and to what, taken altogether, they were tending, they raised no inquiry, except within the very narrowest limits. The conception, so familiar to modern thought, of the unity of the human race, of its

[1] "The Philosophy of History, in France and Germany." By Robert Flint, Professor of Moral Philosophy and Political Economy, University of St. Andrews. Scribner, Welford & Armstrong: New York. 1875.

steady progress through all changes, and of its place in a grand, providential plan, embracing all time, had not yet been reached.

Christianity brought in this important conception; and the reception of it, was facilitated by the circumstance that just at that time almost the whole accessible world was subject to Roman power. Professor Flint, briefly, but with much discrimination, shows how, in the succeeding centuries, the idea of the unity of mankind and of the progress of the race, was gradually developed, both in the East and the West. With this introduction, he proceeds, in Book I., to the special consideration of the successive attempts to construct a Philosophy of History in France. He presents concisely, and criticises acutely, the views of the chief writers from the sixteenth century onward;—Bodin and Cartesianism; Bossuet, Montesquieu, Turgot, Voltaire, Condorcet, the Theocratic School, Saint Simon and Fourier; Cousin and Jouffroy; Guizot, Buchez and Leroux; Comte, Michelet and Quinet; De Tocqueville, Odysse-Barot, De Ferron and Laurent. The survey is comprehensive and careful.

In Book II., relating to Germany, the same method is pursued. After a preliminary chapter, he reviews the opinions of Leibnitz, Iselin, Wegelin, Schlözer, Von Müller, Lessing, Herder, Kant and Schiller; Fichte, Schelling and his school; Frederic Schlegel, Kranse, Hegel, Bunsen Lasaulx, Lazarus, Lotze and Herman. In both Books the author shows a profound study of the subject, a power of keen analysis and vigorous reasoning, and a truly philosophic spirit. He has the great advantage, too, of a Christian standpoint. A complete Philosophy of History without a recognition of God and Providence, as Christianity presents them, among the essential factors, is as impossible as a complete system of astronomy without a recognition of the sun and the law of gravitation. By presenting the opinions reviewed in connection with their respective authors, Dr. Flint adds a semi-biographical interest to his work which materially serves to stimulate the attention, and aid the memory, of the reader.

To students of history, this volume will prove of special value. By all who would attain to broad and luminous views of the course of human events—of the experiences and progress of the race hitherto—it can not fail to be read with interest and profit. The style is vigorous and clear, and the hand of a master is manifest throughout. The volume on Italy and England, will be eagerly looked for by those who have studied this.

THE ABODE OF SNOW,[1]—as the author informs us,—is an exact translation of the Sanscrit compound "Himalaya," and the book which bears this title, consists of a series of interesting sketches of the topography, climate, scenery, and inhabitants, of a comparatively little known portion of South Central Asia. The Himalayas, aside from being the grandest and loftiest mountain range in

[1] "The Abode of Snow." Observations of a tour from Chinese Thibet to the Indian Caucasus, through the Upper Valleys of the Himalaya. By Andrew Wilson. New York: G. P. Putnam's Sons. 1875.

the world, are invested with additional interest because linked with the traditions of the ancient Hindoos, who,—as did the Greeks with Macedonian Olympus, in later times,—assigned to their inaccessible heights, the dwelling places of gods and demi-gods.

The field which Mr. Wilson has entered, is an exceedingly fertile one; and his observations upon that portion of it to which he has chiefly confined himself—the upper valleys of the Himalaya—are full of valuable information. The book deals chiefly with affairs of the present, but occasionally, facts of interest in connection with the past, are presented in such a manner as to prove that the writer is no superficial observer. The writer's chief fault is a diffuseness in writing, which unnecessarily enlarges the volume. By a singular mistake the preface refers to the book as containing twenty-nine chapters, whereas it contains but nine. This part of the volume is also disfigured by a foolish attempt at satire, of which a writer, whom the author describes as his "*alter ego*," is the subject. The author's name is by no means an exclusive piece of property, and one of its many possessors may have committed the folly of writing a "stupid article" on "The Cuttlefish;" but his offense is venial, compared with that of wasting a page and a half, of a book on another subject, in statements intended to suggest that its author is not as stupid as the ichthyologist who bears the same name. Most of the chapters composing the book have already appeared in *Blackwood's Magazine.*

THE CELT, THE ROMAN, AND THE SAXON.[1] This work has been improved by the addition of considerable new material, resulting from discoveries recently made, and affords exceedingly valuable information concerning a period in history, of which comparatively little has been written in a popular form. The expressed purpose of the author is "to make archæology walk hand in hand with history;" and he has given us a manual of British archæology, which furnishes as satisfactory a history of ancient Britain prior to the conversion of the Anglo-Saxons to Christianity, as can be found in a single volume. We find less information concerning the Celtic tribes than might reasonably be expected, and the Druids, regarding whom the investigations of the author would naturally lead him to say much, are dismissed with casual mention. But as the book does not pretend to historical completeness, the fact that its faults of omission are so few, is a matter for commendation rather than criticism.

THE ROMANCE OF NATURAL HISTORY.[2] The inartistic illustration, which faces the title page to this volume, produces an unfavorable impression which is, fortunately, dissipated upon turning its pages. The author writes in an easy and popular style, and of a great variety of subjects chosen from the

[1] "The Celt, the Roman and the Saxon." A History of the Early Inhabitants of Britain. Illustrated. By Thomas Wright, M. A., F.S.A. etc. Third edition, revised. Philadelphia: J. B. Lippincott & Co. 1875.

[2] "The Romance of Natural History." By Philip Henry Gosse, F. R. S. Philadelphia: J. B. Lippincott & Co. 1875.

various fields of nature. Mr. Gosse has made an effort, as he informs us, to "present natural history" from an "æsthetic" point of view; and the varied information which his book imparts, is presented in a manner which is at least suggestive.

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## RECENT GERMAN BOOKS.

DÜRER: HIS LIFE AND WORKS.[1]—Herman Grimm wrote, ten years ago, "Dürer's fame, as to-day established, is of recent date. Only now has it come to be acknowledged that *Dürer* signifies an epoch—his works and his time together, form a work of art, these standing inseparable and called by that one name, Dürer." The history of Dürer's life and art, by Thausing, confirms both parts of this statement; for though the monographs on Dürer form a rich collection of material, and contain many single gems of criticism, there has been hitherto, in German, but one work that treated of this great master in a thoroughly scientific and authoritative manner—A. v. Eye's "*Leben und Wirken Albrecht Dürer*," published in 1860. The fourth centennial of Dürer's birth, however, in 1871, stimulated the production of a more complete and ample memorial of his fame, which is now given in this royal quarto of 537 pages, beautifully printed, and illustrated with more than fifty fine wood engravings, including the characteristic initial letters of the several chapters. In his estimate of Dürer, Thausing starts at the point where Goethe halted; Goethe wrote to Lavater:

> "I honor more and more every day the work more precious than silver and gold of the man who, when one has learned to know him inwardly aright, in truth, loftiness, and even in grace had only the first Italians for his like. We will, however, not say this aloud."—"To-day," says Thausing, "we will say it aloud."

Though we may not rise to the enthusiasm of this utterance, we can hardly call it exaggerated, and the author certainly justifies it in himself, by his scholarly and impartial delineation of his subject. The glorification of Dürer is far from being the motive, or as Germans have it, the *Tendenz*, of his book; but the halo that surrounds the artist arises from the historical grouping of his life and works. And indeed, if we look to strength of handling in the actual, alike in form and feature, and to boldness and truth of delineation in projecting the real into the ideal, we find in Dürer something of the masculine power of Michel Angelo; if we look to range of subjects and diversity of gifts, as shown in his works on anatomy, geometry, proportion, fortification, we find in Dürer a counterpart of Leonardo da Vinci; and in his religious themes, we find much of the majesty of conception and fervor of

[1] Dürer, Geschichte seines Lebens und seiner Kunst von Moriz Thausing. Mit Titelkupfer und mit Illustrationen gezeichnet von Joseph Schönbrunner, Holzschnitt von F. W. Buder. Leipzig: Verlag von E. A. Seemann. 1876.

feeling and something also of the sweetness of tone and grace of expression, that so charms us in Raphael.

After a preliminary chapter on the first schools of German painting, the author draws, in well-defined features, the Nürnberg of Dürer's time;—there, in the geographical center of Germany, the Frankish stock had founded a German state, which united in itself, in select and congenial combination, what, in Swabia, was too abstract; in Saxony too real; in the Rhineland too mobile; in Bavaria too set. Hence, Dürer, as a product of Nürnberg, the embodiment and expression of her life, was also the fittest representative of the genius and feeling of the whole German people. As Nürnberg was once Dürer, so Dürer is now Nürnberg, since the encroaching spirit of this materialistic age is fast destroying the quaint features of this fine historic city, and we must look to her great artist to see her as she was. Thausing describes, with critical detail, the life of Dürer, analyzes his works, both as artist and author, in every form of his manifold development, and in a way to give the reader full material for judgment, rather than to enforce a judgment of his own. Among the most interesting chapters of the work are the accounts of the famous visits to Venice and to the Netherlands; the relations of Dürer to the Reformation, and the influence of his intellectual and moral development upon his art. We are glad to add that this beautiful and instructive volume will soon be issued in English, from the press of Mr. Murray.

History of German Art in Alsace.[1]—Without trenching upon the political question of the re-annexation of Alsace to Germany, we can not but recognize the lien which Germany had upon the province, through the art and literature of earlier times, and also the vigor with which she is prosecuting the intellectual conquest of the territory she has won by her arms. Dr. Woltmann's history of German Art in Alsace, is a good exemplification of both—the old German treasures being recovered by persistent German skill and toil. Woltmann, formerly of Karlsrühe, now Professor in the University of Prague, has been occupied for ten years in studies preparatory to this work; visiting in person all the chief monuments of art in the province, and examining all archives and libraries that could furnish any illustrations of his subject. Those who know Professor Woltmann through his "*Holbein und seine Zeit*," will need no further introduction to an author of such conscientious diligence and approved competence. The central point of his work is, of course, Strasbourg, and especially its cathedral. This is treated with historical and critical fullness, as to plan, growth, style, proportions, and details of ornament—all profusely illustrated—and the two most magnificent creations of the Gothic style upon the soil of Germany, the Cathedrals of Strasbourg and Cologne, are contrasted with minute and careful analysis. The

[1] Geschichte der Deutschen Kunst im Elsass, von Dr. Alfred Woltmann, Professor A. D. K. K. Universität in Prag. Mit 74 Illustrationen in Holzschnitt. Leipzig: Verlag von E. H. Seemann, 1876. pp. 330, royal oct.

Gothic period is considered not only in architecture, but also in respect of plastic art, printing, wood-carving and engraving, glass-painting, and engraving on copper; and, with the discussion of these arts is blended a biographic and critical notice of the masters in each. In some points, the handling seems superficial; but in the main, the author is at home in his task.

Though the Gothic epoch, by the grandeur of its chief monument and the multifariousness of its remains, forms the central figure of Woltmann's work, the Romanesque period, and the earlier Gothic, are exhibited in cloisters, churches and towers—of which Alsace contains some of the finest specimens in Germany—and the volume closes with a chapter on the Renaissance, in which the author gives honorable praise to what Alsace accomplished in art, under the French dominion and the disabilities of war, but predicts that her future development can be only in sympathy with the spirit of the German nation. What that spirit is, has been strikingly shown in the rapid and vigorous revival of the Strasbourg University. The mechanical execution of Woltmann's book is in harmony with the style of the text, and the finish of the wood-cuts leaves nothing to be desired.

FIFTEEN ESSAYS, BY HERMAN GRIMM.[1] As an essayist, Herman Grimm, whose judgment on Dürer we have previously quoted, may well be called the Lowell of Germany. Though lacking the poetic genius of the Cambridge Professor, he is like him in the manifoldness of his gifts and culture, in the wide range of his studies in literature and art, in his generous sympathy with the highest phases of development in all nations, his keen discernment of character, works, and events, and that fine way of saying the best things that makes the essayist a cultivated conversationalist at our side. The new series of Grimm's Essays, just published, numbers fifteen, and embraces in art and archæology, Wiertz, Schinkel, Rauch, Raphael, Holbein, Cornelius, the Florence Galleries, the ruins of Ephesus, the Athenian mortuary vases; and in literary and philosophical criticism, Alfieri's Mirra, Shakespeare's Tempest, and Hamlet's character.

One is a little disappointed that the author, who is as much at home in Florence as in Berlin, and in the Italian as in the German, has not given a more complete artistic sketch of the Florentine Museums. Though his hints are suggestive and valuable, one must look for their amplification, to his life of Michel Angelo, and his forthcoming life of Raphael.

In the essay on Hamlet, Grimm attributes the failure of many to comprehend his character, to the attempt to harmonize opposites in one individual person and life, whereas the art of the poet lies in his incorporation of antagonistic principles without seeking to unify them as a personality. In this view, great actors may well be excused for failing to produce a real Hamlet upon the stage. We think, also, that Shakespeare was true to the deepest experiences of human nature, in the contrasts in Ophelia, that, in the construc-

[1] Fünfzehn Essays von Hermann Grimm. Neue Folge. Berlin: Ferd. Dümmler's Verlagsbuchhandlung.

tion even of Goethe, shock the sense of delicacy. One who has observed hysteria, or studied mental physiology, will have no difficulty in comprehending the poet. These essays should be translated.

INVISIBLE POWERS[1]—Is the title of an historical novel of the present day, in nine volumes, by A. Mels. It goes back to the year 1856, and pictures that period of the reign of Napoleon III, when his power was more firmly established, and the sympathies of the French nation awakened for him, by the birth of the Imperial Prince. The efforts Napoleon makes to secure the throne of France to this son and heir, and also the means which support him and his party in these endeavors;—his relation to other monarchs, his struggles with the Catholic Church, and the persecution of his enemies, are vividly described. Whether the author uniformly proceeds upon a basis of authentic facts may well be questioned. But the principal statements are, in their outlines at least, historical, as, for instance, the circumstances of the "*attentate*" of Orsini, and, at the close of the book, the declaration of the Austrian war, in 1858, which agree with History;—but the space between these prominent points, is filled with the most fanciful pictures, and with events reflected in a mind which seems to know neither limit nor control in the use of its creative powers.

That the author has great brilliancy of style, especially in the dialogue, and also fine perceptive and discriminating powers, can not be denied; it is the more to be regretted therefore, that he is not skilled in the proper use of his talents. The book is written without plan, and characters are introduced, and dismissed, in an equally mysterious manner. The reader is taken from Paris, where he was led into the very heart of the systematically organized Secret Police of the Napoleonic Dynasty, to London, where secret societies and extensive conspiracies rival each other in baseness of means and purposes. Spies undermine all diplomatic relations with Berlin and Vienna, and when one gets through the most revolting scenes, it is difficult to understand why they were described at all. It is easy to see that the author is an enthusiastic admirer of Napoleon III, whose extraordinary intellect, and political importance, he wishes to place in the right light, and against a favorable background. That he does not always succeed in this endeavor, is owing to the faults of his work, which shows more capacity than perseverance. The author is to be commended for impartiality in his treatment of different nations, and those who do not exactly care to study history in the light of such a work, and who are familiar enough with the particulars of those times, may find a great deal of pleasure in reading "*Unsichtbare Mächte.*"

FEUILLETONS BY BLUMENTHAL.[2]—A keen satirist and witty rhymester is

[1] "Unsichtbare Mächte," Leipzig: E. J. Günther.

[2] Allerhand Ungezogenheiten, von Oscar Blumenthal, Dritte Auflage. Leipzig, Ernst Julius Günther. 1876.

Plaudereien von Station zu Station von Oscar Blumenthal. Fur alle Wagen und Menschen-Classen. Günther. 1 mark per vol.

Oscar Blumenthal, with something of Heine's epigrammatic sharpness, and a touch of his bitterness, though quite inferior to Heine in versatility of genius and delicacy of touch. As a *feuilletonist* he is clever and popular, and his sketches and bonmots, brought together in handy volumes, are very entertaining reading for the railway carriage and for leisure moments at the fireside. A few specimens of his wit may sharpen the reader's appetite for the cheap little series just published by Günther of Leipsic.

"Take it all in all, a man can commit no greater stupidity than to be a genius. Even the fact that he can not help it, is an insufficient excuse."

"There are epic poets whose only resemblance to Homer, is that they also nod."

"Satirists, like coquettes, laugh to show their teeth."

"The public of to-day reads the history of Literature more than literature; instead of eating, it studies the Bill of Fare."

"Many modern critics have received from the goddess of Justice nothing but blindness."

Some of Blumenthal's political caricatures and his hits at the Ultramontanes, are capitally pointed; but he inclines too much to personality, and it is not without reason that he dedicates his latest book to his enemies. Travelers in Germany should not omit to provide themselves with his lively volumes for the railway.

THE ROSE, THISTLE, AND SHAMROCK.[1]—A praiseworthy service to English and American Literature, is rendered by Ferdinand Freiligrath, and his enterprising publisher, Mr. Edward Hallberger, of Stuttgart and Leipsic. Hallberger's *Illustrated Magazine*, conducted by Freiligrath, reproduces the best things from the best English periodical literature, in attractive type, and with excellent illustrations. A selection of English and American poetry, made by Freiligrath with discriminating taste, has reached a fifth edition, and appears in pretty binding and with neat wood-cuts. Allston, Bryant, Bret Harte, Emerson, Holmes, Longfellow, Lowell, Whitman, Whittier, Willis, are all well represented. It is gratifying that this reproduction of English and American literature is appreciated in Germany, and both editor and publisher deserve the commendation of Americans.

PHILOSOPHY OF THE UNKNOWN.[2]—It is barely fifteen years since Schopenhauer died, full of bitterness and disappointment at the reception of his system, and to-day the idealistic pantheism, and the ethical pessimism, that are the logical sequence of his philosophy, are as much discussed in Germany as are the systems of Kant and Hegel. True, the followers of Schopenhauer are not numerous nor compact enough to be called a school; but the vigor and ability of some, and the pushing propensity of others, give to the system

[1] "The Rose, Thistle, and Shamrock." A book of English Poetry, Selected and Arranged by F. Freiligrath, Stuttgart: E. Hallberger.

[2] Philosophie der Unbewussten, von Edward von Hartmann, Siebente erweiterte Auflage. Berlin: Carl Duncker's Verlag. 1876.

a prominence that its founder could never have anticipated. The most recognized, prolific, and capable of Schopenhauer's disciples and expounders, is Edward von Hartmann of Berlin. His chief work, which first secured him a name among philosophers, "The Philosophy of the Unknown," has been so thoroughly canvassed in the past three years, that a minute examination of its substance and method would be superfluous. We therefore content ourselves with saying, that no one, who would comprehend the later tendencies of German speculation, can omit to study this work. Abstract as it is, profoundly metaphysical from beginning to end, it has already reached a seventh edition, in two octavo volumes of nearly five hundred pages each. Hartmann occupies a middle-ground between Hegel and Schopenhauer, and shows himself an original and profound thinker. Though Christian theists can not accept the drift of his philosophy, they owe him thanks for his masterly vindication of the Ideal, and the sphere of metaphysics against naked materialism; for the application of the inductive method of natural science to speculative results, basing his metaphysics upon phenomenology; for his demonstration of the necessity for an organic union of the results of natural science in the Ideal—since every thing physical has its metaphysical side; and, though his negative predicate of *Unbewusstheit* does not give us the personal God of Theism, we must thank him also for his metaphysico-mathematical statement of the origin of the presumption of purpose in Nature, which we can apply for ourselves to the proof of the divine existence. The theologian who shall master Hartmann, will be none the less a believer for being made broader and stronger as a thinker; rather he will prize Christianity the more, as the doctrine of life and hope.

THE LIFE OF THE SOUL.[1]—It is another refreshing sign of the vitality of the spiritual against the material, in German science, that a second edition has been issued of the charming essays of Professor Lazarus (of the Berlin University) upon the Life of the Soul. Psychology, which the author styles "the mirror of the soul," is here pictured in contrast with the pursuit exclusively of physical science in its relations to personal culture and national development. Intelligence, morality, the love of the beautiful, in brief, the spiritual, the ethical, the esthetic, have closer and deeper relations to culture than the physical. These all have to do, primarily, with the individual, the personal, whereas the scientific deals with the universal; and though the order, system, principle, law, and method,—in physical science,—contribute also to personal development, yet culture does not consist in packing the mind with knowledge, but in forming the soul itself, to the wise, the noble, the good. Here honor, fame, etc., play their part, and, so far from subject and object being identical, in estimating himself, every man is conscious, as it were, of a double personality; he who judges his act of yesterday, distinguishes

[1] Das Leben der Seele in Monographieen über seine Erscheinungen und Gesetze, von Prof. Dr. M. Lazarus, Zweite, erweiberte und vermelirte Auflage. Berlin: Ferd. Dümmler. Verlags buchhandlung. 1876.

himself to-day from himself of yesterday,—as subject, he pronounces upon himself, as object, is satisfied or dissatisfied. From the soul, as the subject and motive of personal culture in the individual, Professor Lazarus rises to the unity of the whole in the common consciousness, and the spirit of humanity in its historical movement. The ideal of society, he would find in the combination of the highest fervor and strength of unity in the whole, with the highest possible freedom and individuality of each.

INDO-GERMANIC INVESTIGATIONS.[1]—Benfey was the first to compare the Latin nomina instrumenti, formed by the suffix *cru-m*, *clu-m*, *culu-m* with the Greek words on τρο-ν, the Sanscrit on *tra-m*. The Latin has this suffix also in its original form in the words on *tru-m*, *tulu-m* and it has besides even a third form, in the words on *bru-m*, *bra*, *bulu-m*, *bula;* but variation is the life of language, and if but the intermediate stages of the development can be proved to exist, or to have existed, and the change can be shown to be a legitimate one, the existence of other phases of development besides the one in question, is no obstacle at all to Benfey's suggestion. Ebel followed in his steps, and explained the change of *tr tl* in *cr cl*, by the desire for dissimilation, as *t* is nearer cognate with *r* and *l* than *c* (*k*), and the phonetic group, *tr tl*, therefore more difficult for pronunciation than the other group. Ascoli brought as new evidence certain Italian words on *cia*, *chia*, corresponding to Latin words on *tru-m tulu-m* and presupposing therefore intermediate forms with *cl*. The stringency of these analogies was however strongly denied by Corssen who maintained the old theory first stated by Bopp, viz., that *cro clo* were to be explained by Sanscrit *kara*. But new facts came to light from the Lithuanian, through Burda and Bugge, in favor of the change of *t* into *c* (*k*) before *l*, *r*, and it is the object of the first essay[2] in the present work to follow this change, in the affix in question, into its most remote and obscure hiding places. Mr. Osthoff shows himself fully competent for his task, and it is a real pleasure to wander, and to seek, with him. The second essay also, on *ra*, *la*, as an old instrumental suffix of the Indo-germanic languages, is very interesting, and does credit to his industry, as well as to his judgment.

ZUR GESCHICHTE DER INDO-GERMANISCHEN STAMMBILDUNG UND DECLINATION.[3]—Beginning from very subtile speculations on the influence of the pronominal bases *a* and *sa* on the formation of the casus affixes, Meyer proceeds to give lists of words, sustaining his former conclusions, on *a* as well as on *i*, or on *u*, or on all three vowels together[4] and shows the interchange of such forms, even as constituting in the first declension, an integral

[1] Forschungen im gebiete der Indo-germanischen nominalen Stammbildung. Von Hermann Osthoff. Erster Theil. Jena, Herman Costenoble. 1875. P. 212.

[2] P. 1–152.

[3] Zur Geschichte der Indo-germanischen Stammbildung und Declination. Von Gustav Meyer. Leipzig, S. Hirel. 1875. p. 89.

[4] P. 29–56.

part of the flexion itself (in the forms *gatena, gatebhis, gatayâ, gâtâyâs*, etc). He hints that even the locative *gate* may be nothing else than such a radical formation on *e*, which became used as a casus [1] and the Mâgadhî nominative singular on *e* would fain share the same fate.[2] The discussion turns to the declension of the words on *i* and *u*, and the increase of their finals to *e* and *o*. Then follows a list of words on *va*, which are amplifications of finals still existing on *u*.[3] There is also an addition to the flectional theme by a suffix *na* (*tanunâ tanûnâm*); here the author crosses the path of Osthoff (as above), but he takes a different, and in our opinion, somewhat more rational direction. He acknowledges first, that the firm fixation of this phenomenon is peculiar to Sanscrit [4] but he finds the germs of it also already in the Indo-germanic period, yet not in the affix *an*, but in the addition of a suffix *na* to the nominal bases on *a, i, u*. After all, the words on *an* belong here, also; they are returning to such, on *ana;* and the author expressly declares that he is reckoning the so-called weak declination in German as standing in intimate connection with them.[5] Finally, the ending *ns* of the accusative plural of the bases with final vowel, is explained from *nas*, where this same suffix *na*, is joined by the *s*, which serves commonly as exponent of the nominative plural.[6] The little pamphlet is full of thoughtful research, but it fails to carry us throughout, to full conviction.

German Adjectives.[7]—The old suffix *an*, (latin *on*,) which formed originally only primary *nomina agentis*, is shown here as winning ground in the secondary formation of words in Latin, Greek and German, first by serving as a formative for secondary *nomina agentis*, then more generally as a suffix of individualizing, and with original adjectives of substantivizing, power. In German, the *pronomen demonstrativum, ta*, grows by steps into so intimate a connection with these substantivized adjectives on *an*, that when the *ta* afterwards takes regularly the function of the definite article, they in their turn fall back again into their use, as attributive adjectives. Hence the origin of the so-called weak declension of the German adjective. It is a very ingenious theory which Osthoff here proposes with much lucidity of style and great solidity of learning, but we have some misgivings as to its real soundness. For instance, the *n* in the Sanscrit and Zend genitive plural [8] is not restricted to the words on *a*, but belongs also to those on *i* and *u;* it will be, moreover, rather difficult to separate it from the *n* in the feminine affix, *ánî* [9] which serves but as an addition to the final *a*, just as the *vriddhi* in *agnâyî* and *manâvî*, as well as from that *n* which plays so prominent a part in the postvedic development of the declension of the neuters, and in Prâkrit and Pali, also in that of the masculine nouns. To consider all this as "based on a borrowing from the declension, of the words on *an*" [10]

[1] P. 61. [2] P. 64. [3] P. 76–79. [4] P. 81. [5] P. 85. [6] P. 89.

[7] Zur geschichte des schwachen deutschen adjectivums. Habilitationsschrift von Dr. Hermann Osthoff. Leipzig, 1875. Pp. 60.

[8] P. 4. [9] P. 9, 21. [10] P. 4.

would be going too far, and this the more so, as these very words on *an* do not occupy, in Sanscrit, any peculiar position at all; they are, on the contrary, of comparatively unfrequent occurrence. Sanscrit therefore must be left at one side, and cannot be used in sustaining the theory of the author.

COMPARATIVE PHILOLOGY.[1]—That lectures on the history of comparative Philology, should be delivered in Rumanic language, at a faculty of letters in Bukarest, is in itself a fact of sufficient interest to demand the full attention of the friend of human progress. The scientific qualifications of Mr. Hasden appear moreover, to be fully adequate to his undertaking, since he displays an almost astonishing acquaintance with all the different languages in question, which he separates into the Indo-Perso-Tracic, Greco-Italo-Celtic, and Leto-Slavo-Germanic families. The systematic arrangement of what he says is rather defective; there is a constant change of subject, and the red thread, which is to combine the single parts of each lecture, becomes often very dim, if it does not disappear altogether. The object of the first lecture, is the general importance of Comparative Philology; the other lectures treat of its empirical period, first, with the Hindus, Greeks and Romans, then in the middle ages and the Hebrewizing period.

ROMAN TRAGEDY IN THE TIME OF THE REPUBLIC.[2]—In the time of Cicero, tragedy had long been one of the favorite shows of Rome. A great actor was more richly rewarded, both in honors and in money, then, than to-day; and the language heard from the stage seems then to have exercised a much greater influence, not only upon common speech, but upon literature, than it does in our own times. It is true that the Latin drama was but an echo of the Greek; and that its tragedies, like its comedies, were almost exclusively adaptations of works which had already become favorites at Athens. But they were none the less among the most potent agencies in the formation of the literary language, in the education of the popular taste, and in the awakening of those productive energies, which culminated in the Augustan age. They are all lost to us; not so much as a scene, or a page, from one of them, is preserved. Only in the quotations made from them by more fortunate authors, and especially by the grammarians, have we any means of studying their language, style, and merits. Professor Ribbeck's first important work was a critical collection of the fragments of Roman dramatic poetry, the second edition of which, published in 1871, is now received as the standard text of these remains. In the preface to that edition, he announced that his explanatory and illustrative comments upon the fragments, were reserved for a future work upon the history of Roman tragedy, to be written in German; and the book before us is the fulfillment of that promise. There are many

[1] Comparative Philology. B. P. Hasden, Principie de Filologia comparativa ario Europea. Cur tinut la facultatea de Litera si Filosofia din Bucuresci. Tom I. Istoria filogiei comparative. Bucuresci, Thiel & Wein. Nos. 1–4, pp. 408.

[2] "Die Römische Tragödie" im zeitalter der Republik. Dagestellt von Otto Ribbeck. Leipzig: Trubner. 1875.

minds for which this bold attempt to reconstruct an entire branch of a national literature out of a thousand or more brief and scattered quotations, will have a singular fascination, for the sake rather of the processes than of the results. To such we commend Professor Ribbeck's essay as one of the most curious examples of literary divination yet produced. The industry with which he has brought together every scrap of information, bearing upon his subject, which could be gathered from the wrecks of antiquity, is only equaled by the persistent ingenuity with which he has wrought out in detail, for every problem it offers a solution at least plausible and suggestive. Many of his theories concerning the interpretation of the fragments, the structure of the plays, and their relation to Greek originals, certainly appear to the reader to be unsustained by evidence. Devout disciples of Niebuhr long ago learned to sit at that master's feet, and having asked him—

"What else *thou seest*
In the dark backward and abysm of time?"

took his answer for an undoubted revelation; and probably Ribbeck's vision, in literature, deserves to be the faith of a school, as fully as Niebuhr's, in history. But the world is more critical of proof than it was fifty years ago, and we can not expect that all of our author's combinations and inferences will be accepted. For instance, of the famous tragedy of Pacuvius, the "Teucer," which was a favorite on the stage and in the schools of Rhetoric in the time of Cicero, we have twenty-one fragments, amounting in all to about thirty lines, scattered through the works, mainly, of Festus and Nonius; though the longest passage, one of four lines, is a quotation made with high praise by Cicero himself. Out of these, Professor Ribbeck has formed a vivid and intelligent conception of the plot, style, and characteristics of the entire play, which he unfolds to us in a spirited essay of eight pages (223–231). It would be assuming too much to expect that the reader will regard the science of comparative criticism as equaling that of comparative anatomy in its claims on his confidence; so that he will accept Ribbeck's reproduction of a lost tragedy as he would Huxley's of an extinct animal, from fragments of proportional importance. But of one thing he may be assured, and it is of more moment than the precise accuracy of these detailed results—that the imagination which is at work in this reconstruction is no vague, wild fancy; but is an educated imagination, in the highest sense; that is, it is one which reproduces with surprising fullness of knowledge, and with vivid realization, the very "form and pressure" of the times when these tragedies were written and played. Hence, whether the student accepts or rejects the author's views of the several passages discussed, he will inevitably find this work one of the most stimulating and instructive, in the whole range of the history of Roman literature. We must add that in the chapters which treat of the lives of the several tragic poets, of the theater, the stage and its arrangements, the costumes, masks, and character of the actors, we are on firm ground; and all that is known on these subjects, is brought together with a fullness and accuracy of scholarship, and a graceful

vigor of style, such as are not, we believe, united to the same degree in any earlier work.

HISTORY OF AUSTRIA AND PRUSSIA, FROM THE PEACE OF AIX-LA-CHAPELLE.[1] Leopold von Ranke has just celebrated his eightieth birthday, but seems as full of conversational vivacity and of scholarly enthusiasm as we remember him at sixty. Though he has ceased to lecture, and, in consequence of infirmity of hearing, has pretty much withdrawn from society, his mind betrays no loss of vigor, and his pen is as busy as ever, either with fresh monographs, such as his edition of the correspondence of Frederick William IV with Bunsen, or with the revision of his complete works. The latest volume which has appeared is a contribut ion to the history of Austria and Prussia, from the peace of Aix-la-Chapelle to the peace of Hubertusburg. Ranke avoids two vices quite common to German historians—excessive dryness of detail, and the framing of speculative hypotheses. From his stores of solid learning, he knows how to select persons and events according to their moment, to describe them dispassionately and group them effectively. He is master, alike, of close critical analysis and of broad, candid, generalization.

This book is not a history of the Seven Years' War, but a contribution of materials toward such a history, with philosophical annotations and conclusions. The first sixty pages picture the state and court of Maria Theresa in 1755, upon the basis of the papers of Fürst; the remainder of the volume discusses the political and material interests of France, Austria, Prussia, England and Russia, the powers involved in the war, with the motives of each as exhibited in the subjoined *Analecta*. Ranke vindicates Frederick for striking the first blow, in view of the conspiracy to despoil him of his kingdom and reduce him to a Marquis of Brandenburg; and in the light of present events, shows that the establishment of the independence and power of Prussia, was a turning point in the history of Europe, and that the Austria of today owes her recuperation, to having followed the example of Prussia, in her economical, military, and civil organization.

UNIVERSAL GERMAN BIOGRAPHY.[2] Better than all the monuments of stone and bronze that Germany is rearing to generals and statesmen, and above all to "Victory," is the literary memorial which the Royal Academy of Munich is preparing of the men who have really made the nation what it is—all who, by their works or their doings, have contributed to the development of Germany in history, science, art, industry and trade. The first volume of the Universal German Biography completes the letter A, and closes with the title "Baldamus." As a rule, the articles combine fullness with brevity, and

[1] Zur Geschichte von Oesterreich und Preussen zurischen den Friedensschlüssen zu Aachen und Hubertusburg. Von Leopold von Ranke. Leipzig: Duncker & Humblot, pp. 383, price 7 Marks 20 pfg.

[2] Allgemeine Deutsche Biographie, Erster Band. Heraus gegeben durch die Historische Commission bei der König. Academie der Wissenschaften. Leipzig: Duncker & Humblot. Pp. 781. 1875.

preserve the relative perspective of the characters treated; some, as for instance, those on Albert, Bishop of Riga, Albrecht, Margrave of Brandenburg, Sebastian Bach, and others, run to the extent of distinct monographs. The list of contributors extends to upwards of four hundred names, and embraces the most eminent men of Germany, in all departments of literature, science, art and affairs. Each article bears the signature of the writer, in token of its authority, and the work, as a whole, is under the supervision of Baron von Liliencron, of Munich, and Professor Wegele, of Würtzburg. Years will be required for this great undertaking, but as each volume is complete so far as it goes, public libraries should supply themselves with the dictionary of universal German Biography as fast as it appears.

HISTORY OF EGYPT.[1]—Dr. H. Brugsch has largely rewritten his History of Egypt which appeared in 1854, for a new edition, now issuing in a more convenient form. The discoveries of the last fifteen years have added greatly to the materials for illustrating the Pharaonic period, and the official position of Brugsch-Bey has given him the best opportunity for his favorite studies. The changes apparent in this new edition, are a fresh warning against premature hypotheses in Egyptology, but they testify also to the diligence and candor of the author. It is to be hoped that he will now finish the work, the second volume of which was promised twelve years ago, and which is necessary to the just estimate of Dr. Brugsch's conclusions.

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## TRANSLATED FROM THE GERMAN.

CYCLOPÆDIA OF THE PRACTICE OF MEDICINE.[2]—The "*Handbuch der Speciellen Pathology und Therapie*," edited by Dr. Ziemssen, of Munich, and now far advanced in the course of publication, is an attempt to bring together in one series, treatises on the nature and treatment of all known diseases, prepared by physicians eminent for their knowledge and capacity, and representing the present advanced state of medical science. In the German language, most, though not all, of the field it covers is already occupied by works which may be regarded as its rivals; yet even writers who are in chronic controversy with some of its authors, on questions of detail, will recognize it, as, on the whole, the most complete and satisfactory book of its class. But there is no other language in which any one work can be found to serve even as a respectable substitute for it; and of the systematic treatises on the practice of medicine of which the English language boasts, there are

[1] Histoire d' Egyptè; par Henri Brugsch-Bey. Histoire des Dynasties I-XVII. Deuxième Edition. Leipzig: J. C. Heinrichs.

[2] "Cyclopædia of the Practice of Medicine." Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vols. I. and II., Acute Infectious Diseases. Vol. III., Chronic Infectious Diseases. Translated from the German-American Edition, and edited by Albert H. Buck, M. D. New York: William Wood & Co. 1875.

none which are not either too meager, or too far behind the times, to be brought into comparison with it. Indeed, an American physician might spend years in collecting special treatises, and fail to secure as useful a working-library, one as sure to instruct him in so many departments of his duties, and to furnish him to such an extent with the substance of all that science has been able to discover for his guidance,—as is here offered in a single shelf-load. We say this in the expectation that the work will be completed with the same diligence and ability which have hitherto marked it; an expectation justified by the character of the authors engaged upon the few volumes not yet issued, and by the remarkable degree of uniformity in excellence attained by the completed volumes. Some, indeed, will find superfluous matter in Professor Thomas's minute discussions of measles; others will complain that Dr. Curschmann discusses too curtly some of the most interesting problems in the history and treatment of small-pox. But the instances of disproportion are so rare and unessential as not to impair the general character of the work; and Professor Von Ziemssen himself, the principal editor, in his treatise on "Cerebro-Spinal Meningitis," has furnished an admirable model to his associates, in an article so complete, clear, and intelligent that too much can hardly be said in its praise.

A translation of a work like this is a task attended by difficulties. Many arguments might be offered against attempting to transfer it, as a whole, into a language like ours, and for the use of a people whose climate, habits, food, and government, are so different. For instance, nearly the whole of the first volume of the original is occupied by an essay on medical police, and the care which the organized community must exercise over the health of its members. The subject is treated with the German habits of thought, engendered by life under a paternal government, and largely incapable of acceptance in a land of individual freedom. Probably for this reason, the American editor has begun his translation abruptly with the second volume of the original; passing over in silence the first, which was evidently designed as a general introduction to the whole. But similar difficulties arise throughout the work. The prominence assumed by the several articles is not always in proportion to the importance in this country, of the diseases described, and local and statistical information is presented from a German, not an American, point of view. Thus Dr. Hertz remarks of malarial diseases on this Continent, that "In the Middle States they are rare, and in the Northern States are probably unknown;"[1] a sweeping inaccuracy, more tolerable in Amsterdam than in New York. And sometimes the very regimen and diet, recommended in particular cases, savor of Teutonic society and habits of life. In short, were a similar work originally prepared, with equal resources, in this country, it would differ widely from Dr. Ziemssen's in style, arrangement, in the relative importance of its parts, and even in many of its special instructions. The temptation is strong to think that this book ought to have been, not translated, but rewritten, and adapted in all respects

[1] Vol. II. p. 562, Am. Ed.

to the thoughts and habits of the profession here. But no such recast could be made, except by the united and continuous labor of a large number of our foremost men, and this it is hopeless to secure, so long as our first medical minds are as overworked as now. And rather than attempt a reconstruction of the book by inferior hands, we think the American editor has done wisely in choosing simply to reproduce it, with no other change than that involved in the transfer to another language. The differences, indeed, between the German and the American method and style of treatment, are not wholly to be deplored. Since the faults of many of our own physicians, especially in districts remote from great cities—professional narrowness and bigotry, distaste for a rigidly scientific method, and the like—can be subjected to no more thorough and efficient treatment than close contact with the professional mind of Germany.

After a careful examination of the version, side by side with the original, we can not withhold our cordial approval. The translators are not, indeed, equal, in patient accuracy, or in ability to write good, clear English; but no one of them seems to have failed in understanding his author, or in conveying his meaning. Indeed most of the treatises thus far published are decidedly more accurate and more readable than is usual in translations, either of scientific or of literary works. Not so much can be said, however, for parts of the second volume, which seems to have been prepared with undue haste. Here we find not only sentences awkward in construction, and which it requires close examination to understand; not only clauses unskillfully condensed, or even omitted, which are essential to convey the author's full thought; but in some instances actual perversions of the original, which, though not of great importance, evidence gross negligence. For instance, on page 112, Dr. Thomas says of an epidemic of measles in Munich, there died "70 children under one year (out of 195), 119 at the age of from one to five years, 11 persons above fifteen years, (out of 185 sick); the mortality of the first five years was therefore 94.5 per cent. In Würzburg, it was, according to Voit, for the same years of life, about 93 per cent." The passage relates to the relative danger of this disease at different ages, nor can a reader of the original easily fail to understand its estimate, that, while at Munich 94½ per cent. of the deaths were of young children, at Würzburg 93 per cent. were of that class. Even the translation would be correctly apprehended, but for the following remark of the translator at the foot of the page, upon these percentages: "These are probably typographical errors; 24.5 per cent. being intended."

This translator assumes that the types are at fault, because he misunderstood them. He would have been more useful if he had shown more confidence in the figures of the original, which are remarkable for accuracy, and had, in several passages, read his own proofs by them with more care. A curious error of another kind occurs on page 8, where the author discusses varicella as a disease almost exclusively of young children. In a paragraph filled with proofs that adults are exempt from it, the reader is surprised by

the following sentence: "The explanation given by Kassowitz—a believer in the identity of variola and varicella—of the circumstance *that young children are almost never attacked by varicella*, is excessively forced." This remark stultifies the whole section, and the reader can only disregard it, or turn to the original. Here is found a very different statement—"the fact that varicella hardly ever makes invalids of young children;" in other words, the fact that chicken-pox is almost always a very trifling affair, is the difficulty to be explained by theorists who identify it with small-pox. A number of such errors occur in the same translator's work; and his use of the English language, too, is sometimes more amusing than instructive. For instance, we have such phrases as "children of advanced years," "elderly children," (page 8), and "children of an advanced age," with many other violent perversions of our idiom. In other parts of the work, offenses against either accuracy or good taste are much less frequent. Perhaps the repeated use of the word "attack" for "paroxysm" or "fit," (German *Anfall*) is the most striking instance; thus we are in one passage informed that cholera sometimes proves fatal "before the stage of attack has been reached."[1]

It is only by calling attention to details like these, that criticism can hope to protect the public against the prevailing vice of careless translation. A large, and increasing, part of our scientific and professional literature, consists of transfers from German into English; and the good these may do us depends to a great extent on the standard of excellence exacted from the translators. It is but fair to say that the work in question, as compared with most of the versions of German medical works in circulation, deserves to be called faultless, since the passages are very few which do not convey the true sense, and perhaps none are seriously misleading. But there is no impossibility in giving us the thoughts of a foreign writer, in an English dress marked by the same scholarly precision and grace of language which a cultivated writer would seek in his own composition; and where the translator deliberately adopts a lower standard of style than this, he slights at once his author and his reader. Many of the essays in the "*Handbuch*" have a high literary as well as scientific merit; and of the former there are few traces left in the translation.

As the boldest and most important literary enterprise yet undertaken, in this country, in the service of the medical profession, the "Cyclopædia" deserves a hearty welcome; and we shall watch its further progress with interest. Its successive volumes will be eagerly sought, and studied, by all practitioners and students who appreciate the comprehensive and progressive character of the science they profess.

[1] Vol. i. p. 429.

## ART IN EUROPE.

Mr. Ruskin, in *Fors Clavigera*, has had a little outburst of self-praise, in one of the most remarkable pieces of eloquence he ever committed to paper. He tells the public that he has passed his life in giving alms, and not in running after fortune; that he has always labored for the fame of others, and not for his own fame; that he has preferred celebrating the genius of Turner, rather than exhibiting his own skill; that he has reduced his income, and improved the condition of his tenants rather than take from them the necessaries of life; that he has never disobeyed his mother; that he has exercised kindness and gratitude even toward the undeserving, and that he has respected women. Then, after enumerating all these virtues as his own, he says that because of them, all the hacks of literature and art, speak disdainfully of him and his effeminate sentimentality.

The passage is a fine bit of indignation, but I need hardly observe that it is much more eloquent than exact. The simple truth is, that, until he told us, we were absolutely not aware that Mr. Ruskin had reduced his income to benefit his tenants, or that he had never disobeyed his mother; and, certainly, no writer whose opinion is in the least worth caring about, would treat Mr. Ruskin either with censure, or ridicule, because he had been a kind landlord, and a dutiful son. We supposed, as a matter of course, if we ever thought about the subject at all, that Mr. Ruskin respected women, for English gentlemen very generally do so. We are not at all surprised to learn that he is very charitable, for the general belief about him, before he told us, was that he had a kind and generous disposition. With regard to his indifference to fame, I rather imagine, without questioning the perfect sincerity of Mr. Ruskin's declaration, that he was not quite so indifferent to it some years ago, as he himself supposes. The first impulse to write upon art was certainly, in his case, the desire to make people do justice to Turner, but the whole of his writings have not been devoted to this purpose; the three volumes of the Stones of Venice, for example, did not relate to Turner. The truth seems to be that Mr. Ruskin began his career as a writer on art, quite disinterestedly, but that, rather later, the sense of power became agreeable to him, and he attempted to set up an autocracy in art-criticism. In this he very nearly succeeded—I mean in England—and might have succeeded completely, at least for a time, if there had not been an immensely powerful and influential school of art just across the channel, within a day's journey of London, which worked in complete independence, and disdainful ignorance, of English opinion and criticism. Our present relation to Mr. Ruskin may be explained in a few words. We read with interest what he has to say, and we have a cordial respect for him, personally; many of us, indeed, have quite an affectionate respect for him; but his influence upon opinion, is not now that of an autocrat. One proof of this will suffice. Mr. Ruskin has always spoken of Constable with contempt, and yet the general estimate of this artist

has been steadily rising, so that the present prices of his works are fifteen or twenty times what they were before Mr. Ruskin condemned them. Constable is now considered to be one of the great masters, both in England and on the Continent, though Mr. Ruskin said that he was only an industrious amateur, whose pictures had neither chiaroscuro, nor anything else, to commend them. Perhaps the real source of the sensitiveness which is apparent in some of Mr. Ruskin's later writings, may be the feeling that he is not so powerful over opinion as it may seem to him desirable, in the interests of art, that he should be. But even if a single critic could have knowledge enough, and sufficiently wide sympathies, to be a beneficent autocrat of art, such a despotism would not be so good for it as the present freedom of opinion and discussion.

The French critical public has been generally complaining of the mediocrity of the last *Salon*, and this led to the proposition, which was happily negatived, that there should only be a *Salon* once in every three years. The advocates of this change imagined that it would raise the quality of art, by leaving more time to the artists for the production of their works; but they did not see that the real cause of hurry in the profession of painting, is not the frequency of the annual exhibitions. The real cause is generally either poverty, or idleness. A very poor artist, pressed by his creditors, has to turn out pictures faster than is consistent with good quality, because his prices are so low, and the proportion of work that he can sell is so small, that he must produce many, to get a little money. An idle man, begins work late in the day, and smokes and dawdles instead of getting on with it, so that he does not really give it so much time as he supposes, and it is insufficiently thought out, or slightly executed. In either case, the annual *Salon* is not responsible for the result. There is plenty of time, in twelve months, to produce two good pictures, if artists could and would devote it to something really worth doing. Again, the annual *Salon* does not compel every artist to exhibit annually. He may exhibit once in three years under the present system if he chooses. It is a fact that several of the best living artists never exhibit at all. Rosa Bonheur, Diaz, and others in France, have long since ceased to exhibit, though they paint as much as ever. Rossetti and others, in England, never send anything to the academy. There is, in fact, an increasing tendency among artists of established fame, to avoid the risk of exhibiting. They have nothing to gain from criticism, and much to lose; for criticism can both make and unmake artists, as Queen Elizabeth could bishops. Nobody dreads criticism so sensitively as an artist of established reputation, for the slightest expression of doubt about his greatness, may spread skepticism among the public, and lower his name in the market. An artist who has a position, even dreads the chance of being badly hung, for the public may infer that he is not such a great man, if his pictures are disrespectfully treated. I once asked a well known painter why he sent his most important works straight to the buyers without exhibiting them, and he told me frankly that the risk was too great, that he could not afford to incur

the danger of making a purchaser dissatisfied, that there might be harsh bits in the newspapers, and that the hangers might treat him without sufficient distinction. The tendency among French artists of the present day, is to regard the *Salon* as a place good for the winning of fame, but dangerous to its preservation. French criticism is less and less respectful. The critics, for the most part, seem to think that the more disdainfully they write, the more knowing they will appear; they go to the *Salon* not to enjoy but to find fault, and they have at last really succeeded in persuading the public that French art is in a very bad way. The truth seems to be that there is in it, as Byron said of the literature of his own time,

"Little that's great but much of what is clever."

The French look back to 1830, and ask how they are to bring back the time of stirring and powerful works, or in other words how they are to produce geniuses, and make geniuses do their best. No arrangement about exhibitions, however judicious, can achieve this. The difficulty is in the temper of the age, and in the habits of modern life. The expenses of living have greatly increased and artists are becoming more and more like other people, so that they require tolerably good incomes. The art which is grand and sublime rarely yields a good income. Profitable art in these days is very clever, very pretty, and on a small scale to suit small rooms. As in literature we write stories and review articles instead of epics which aim at sublimity, so in painting, the small well-finished *tableau de gnre.* interesting but not sublime, is what pays the artist's Christmas bill. There is a scheme for having a Salon of an exceptional character every fifth year, to consist of the best works produced in the interval whether already exhibited or not. This idea seems good but I believe that such a test of national power in art would have greater importance and effect if applied only once in ten years. The rules for the Salon of 1876 appeared about the 1st of December. Only two pictures of each exhibitor will be admitted. This rule is a good one, in some respects, but there is one objection to it, which has never, to my knowledge, been stated. The objection is that it induces many artists to paint larger pictures than those which their own taste and talent would suggest to them, merely that they may not be overlooked. It seems absurd that Meissonier should only be allowed to exhibit two pictures, which, as he paints them, can never occupy more than a very small space, when Gustave Doré may show canvas enough to cover a house-front.

In connection with the Salon of 1876, I may mention the institution of a new prize which is to be called the *Grand Prix de Florence.* This is to be offered every two years to some exhibitor in the French Salon, who, being under the age of twenty-six, may seem to have given most serious evidence of talent and originality. The new prize is bestowed by the big art-journal *L'Art,* and will consist of five thousand francs. There is no restriction as to the nationality of the young artist to whom the prize is to be given, but unless he happens to be an Italian, he will be obliged to live at Florence for

two years—if Italian, he may live in Paris. He will have to present a specimen of his skill, not to the proprietors of *L'Art*, but to the city of Florence, before he leaves it. I have just learned that the authorities at Florence have determined to do something, on their part, for the prizemen, but what they will do, is not yet quite decided. No doubt they will give him every possible facility, with the usual intelligent Florentine hospitality. The real object of this new prize, is to contend against the benumbing influence of official teaching, and encouragement, in Fance. Possibly, at the same time, there may be a legitimate desire to extend the influence and reputation of the journal. I can not say that I approve of the system of giving prizes, whether they be medals, or ribbons, or money, to artists *in their maturity;* such a practice is objectionable in many ways, but a prize is a great encouragement to a young man, and a few thousand francs may be an immense help to him. The givers have well selected the city where the prizeman is to spend his two years. In many respects it is a better place than Rome for a young artist, and it will be impossible to pass two years there without coming under high and potent influences whose effects will last through life.

P. G. HAMERTON.

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## SCIENTIFIC PROGRESS.

NEW ASTEROIDS continue to be announced with unwelcome frequency, the number now known being one hundred and fifty-eight, of which seventeen were discovered in 1875. The rapidly lengthening list of these small bodies is already becoming a serious embarrassment to astronomers. Arrangements have been made at the observatories of Greenwich and Paris for systematic observations of them in alternate fortnights; and at the observatory of Berlin, where they have for a long time been made a specialty, Dr. Tietjen has begun the publication of a fortnightly bulletin for the purpose of rendering available to astronomers, observations, with ephemerides or corrections of them, in order to facilitate the prosecution of the work.

A NEW and interesting relation between electricity and light has been discovered by Dr. Kerr, of Edinburgh, and is announced in the *Philosophical Magazine*, for November and December, 1875. In his experiments the poles of an electrical machine, or induction-coil, were formed of small wires which were inserted into the substances examined in such a way as to leave a small interval between their ends. It was found that when glass, resin, and the like, as also some liquids, were subjected in this way to an intense electrostatic tension, they acted upon polarized light like doubly-refracting media; and that, when placed between two crossed Nicol's prisms, they restored the light which had been extinguished by the prisms. The substance was so placed that the luminous ray traversing it was perpendicular to the line of electrical action. With solids, the effect gradually rises to a maximum, and dies away slowly on the cessation of the electrization. In liquids it begins

and ceases with the electric charge. Glass, olive oil, and some other substances, comport themselves with respect to the light like carbonate of lime or other negative crystals; resins, carbon disulphide, and so on, like positive crystals. The experiments indicate a polar arrangement of the molecules in the lines of the electrical influence, and that these are lines of compression in the former class of bodies, and of extension in the latter class.

PROFESSOR E. EDLUND contributes to *Poggendorff's Annalen*, vol. CLVI., an experimental proof that the resistance to an electrical current is dependent upon the motion of the conductor by which it is conveyed. By means of an apparatus in which a voltaic current was passed through a circuit of which a part was composed of a fluid electrolyte, with arrangements by which polarization of the electrodes was either made null or of no effect, it was found that the resistance is diminished if the conductor and the current move in the same direction, but is increased when their directions are opposite.

THE SUPPOSED DISCOVERY of a new force, as resulting from some experiments made by Mr. T. A. Edison, of Newark, the well-known electrician, has given rise to much discussion in the daily newspapers, though the matter has received little notice as yet in scientific journals. From all accounts thus far published, it appears that there is absolutely nothing new in the phenomena observed, and that all the effects described may be very simply accounted for. It is a fundamental law in electro-dynamics that a conductor, as a wire or bar of metal, in the neighborhood of an electrical or magnetic field of force, is traversed by an electrical current whenever the intensity of the force in such field is varied, or when the current producing it is either broken or closed, a direct current being produced in the wire in the former case, an inverse current in the latter. If the change in the primary current is sudden the induced current is instantaneous. If the primary current is closed and instantly broken again, as by touching an ordinary break-circuit key, the two induced currents are almost simultaneous. When only a single wire passes through the electric field, the current induced in it is very feeble. These facts sufficiently explain the failure of the experimenters to get appreciable effects with delicate galvanometers, or to perceive any sensation when the current was passed through the body. Had they used a coil or helix of wire with sufficiently numerous turns, they would have produced a current intense enough to affect the most pachydermatous organization. The phenomena in fact are almost identical with those which may be observed in the operation of an induction coil, except in the matter of the lower intensity. In an article in the January number of the *Journal of the Franklin Institute*, Professor E. J. Houston calls attention to the fact that he published an account of very similar phenomena as long ago as 1871, and showed that they were readily explainable by the ordinary laws of induction.

M. LECOCQ DE BOISBAUDRAN communicates to the *Comptes Rendus* of the French Academy for Dec. 6, 1875, the results of further investigations respecting the new metal Gallium, which appear to put the reality of the discovery beyond doubt. By electrolysis he has obtained the element in the

metallic form as a deposit upon a negative platinum electrode. It is a hard lustrous metal, whiter than platinum, and capable of taking a polish under an agate burnisher, though with difficulty on account of its hardness. It does not oxidize readily in the air, at ordinary temperatures, nor even at a temperature of nearly 200° C. It decomposes water, acidulated with hydrochloric acid, with a brisk evolution of hydrogen. Both in its physical properties, and in its chemical functions, the new metal appears to resemble aluminum.

In a previous number of the *Comptes Rendus*, for Nov. 22, Mendelejeff calls attention to his memoir upon the law of periodicity of the chemical elements, a translation of which was published in *Liebig's Annalen* in 1871. In this memoir, which seems to have received far less attention than it deserved, and which is likely to serve as a starting point for numerous researches in chemistry, the author pointed out the fact that this remarkable law indicates the existence of several unknown elements, and renders it possible to predict their properties and chemical functions. He particularly specified two, which he called eka-aluminum and eka-silicium, and described in detail the properties which they might be expected to exhibit if discovered, even going so far as to assign their atomic weights, specific gravities, and formulas of some of their compounds. The characteristics of the new metal, so far as they are determined, seem to confirm these predictions in a remarkable manner, and to indicate that the law announced by M. Mendelejeff is a fact in nature, and may lead to important discoveries.

Dr. W. F. Hillebrand and Dr. Norton have published in a recent number of *Poggendorff's Annalen* an account of some researches, undertaken by them in the laboratory of Prof. Bunsen, in Heidelberg, upon the metals Cerium, Lanthanum, and Didymium. Using material placed at their disposal by Prof. Bunsen, and following methods devised by him, they succeeded in obtaining, by electrolysis, considerable amounts of the pure metals, in spherical masses, some of which weighed five or six grammes. They find that metallic cerium has the color and luster of iron, and is readily polished. It fuses at a strong red heat, and after having been fused has about the hardness of pure silver. The metal can be easily hammered into plates, or rolled out into foil, and when warmed can be pressed into wire. It takes fire in the air more readily than magnesium, so easily, in fact, that on scratching it with a needle or scraping it with a knife, the minute particles removed are inflamed and thrown off as brilliant sparks. The wire kindles at once when thrust into a flame, and burns with even greater splendor than magnesium. Metallic lanthanum and didymium resemble cerium in their general properties, but are harder and less ductile, and tarnish more readily. The latter of them has a perceptibly yellowish color. The authors intend to determine the specific heats of these elements, in order to fix their atomic weights; and their investigations have a special interest in view of the changes in the received atomic weights made by Mendelejeff in assigning them their places under his law.

Arthur W. Wright.